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GREAT LAKES FORESTRY CENTRE
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A review of important forest insect and disease problems in the GOGAMA DISTRICT of Ontario, 1950-1980

Compiled by

H. J. Weir, M. J. Thomson,
D. C. Constable and C. G. Jones

Miscellaneous Report No. 57

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THE GREAT LAKES FORESTRY CENTRE

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A REVIEW OF IMPORTANT FOREST INSECT AND DISEASE PROBLEMS IN THE GOGAMA DISTRICT OF ONTARIO, 1950-1980

Compiled by

H.J. Weir, M.J. Thomson, D.C. Constable and C.G. Jones[1]

GREAT LAKES FORESTRY CENTRE

CANADIAN FORESTRY SERVICE

GOVERNMENT OF CANADA

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FOREWORD

The first forest insect surveys in Ontario were carried out in 1936 from the Dominion Entomological Laboratory in Ottawa and continued from this location until 1944, when the province of Ontario was divided, for the purpose of these surveys, into northern and southern Ontario. In 1945, personnel from Ottawa continued to conduct and report on surveys in the area south of the Algonquin Park and Parry Sound forest districts, while personnel from the Forest Insect Laboratory in Sault Ste. Marie carried out surveys in the area to the north. In 1950 responsibility for reporting insects for all of Ontario fell to the Sault Ste. Marie laboratory. In 1952 the Forest Disease Survey was initiated with headquarters in Maple, Ontario, and was moved to Sault Ste. Marie in 1967. The results of these surveys of insects and diseases are reported in the Annual Report of the Forest Insect and Disease Survey (FIDS) published by Canadian Forestry Service headquarters in Ottawa. In addition, annual district and regional reports, begun in 1948, are prepared by FIDS technicians (Rangers) in Sault Ste. Marie. In 1980 a new provincial report was released in Ontario. The contents of the following review have been abstracted from these reports and compiled in alphabetical order by the scientific names of species in each of the following categories:

Major Insects or Diseases

Capable of causing serious injury to or death of living trees or shrubs.

Minor Insects or Diseases

Capable of causing sporadic or localized injury but not usually a serious threat to living trees or shrubs.

Abiotic Damage

Damage caused by non-living factors.

All measurements in this review are in metric form and conversions from Imperial measurements given in the earliest reports are taken to the second decimal point [i.e., sq. mi. to km^2 = area (sq. mi.) x 2.59 = area km^2]. Infestation maps in this review were copied from the original maps in the FIDS technicians' reports. Abbreviations for the common names of the host tree species, along with the scientific names, are shown in Appendices A and B. To facilitate the location of hosts, deciduous and coniferous species have been separated and listed alphabetically under the common names.

Appendix C is a series of maps for northeastern Ontario grouped alphabetically by insect species or disease pathogen and showing the location of infestations within a region or infestation boundaries that extend beyond regions.

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INTRODUCTION

This report is a review of significant forest insects and diseases that have occurred in the Gogama District during the period 1950 to 1980, with a brief summary of outbreaks prior to 1950. In the selection of pests for this report particular attention was paid to the major working groups of host species in the District, namely hardwoods (red maple, poplar and birch) and conifers (tamarack, white pine, red pine, jack pine, spruce and balsam fir), as well as some ornamental and shade trees. The insects and diseases included are capable of causing, or have caused, tree mortality or a reduction in growth. Also included are abiotic problems that cause damage such as winter drying, drought, frost, hail and storm damage.

SUMMARY

FOREST INSECTS

Birch Skeletonizer, *Bucculatrix canadensisella* Cham. [Major]
pages 11-14

Defoliation by this insect seldom causes mortality of the host but weakened trees are subject to attack by secondary insects and diseases. Large outbreaks of the insect usually last 3 to 4 years, then decline rapidly. Medium-to-heavy infestations have been recorded throughout most of the range of the host species periodically since 1941.

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.) [Major]
pages 15-20

An outbreak of this hardwood defoliator usually lasts 2 to 3 years. Although it does not cause mortality, the insect does predispose the tree to attack by diseases and boring insects by causing losses in vigor and increment. Varying degrees of damage have commonly been reported since 1957.

Spruce Budworm, *Choristoneura fumiferana* (Clem.) [Major]
pages 21-44

This insect is considered to be the most destructive insect pest of several coniferous hosts in eastern Canada, the main hosts being white spruce and balsam fir. Though not major hosts, black spruce, eastern hemlock and tamarack are attacked and considerable tree mortality can occur. This report shows the start of the current infestation in 1968, with major enlargements of the infestation occurring yearly, progressing through to the first mention of top and tree mortality in 1972, and then through to 1980 when defoliation and mortality were common and widespread. Infestations were recorded from 1940 to 1949.

Jack Pine Budworm, *Choristoneura pinus pinus* Free. [Major]
page 45

This is a destructive pest of pines that can cause tree mortality after approximately two years of severe defoliation. The first record of budworm infestation occurred in Jack and Noble twps in 1967.

Jack Pine Tip Beetle, *Conophthorus banksianae* McPherson [Minor]
page 45

This borer infests the twigs of jack pine trees and causes the new growth to wilt and die. No chemical control is known; however, high populations were recorded only in 1961 and 1962, and otherwise populations have remained low.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.) [Major]
page 46

This insect defoliates both red and sugar maple but prefers red maple understory. No severe infestations have been recorded to date; however, light-to-medium infestations were commonly reported between 1955 and 1958.

Aspen Defoliators: Aspen Twoleaf Tier, *Enargia decolor* (Wlk.) [Major]
and Aspen Leafroller, *Pseudexentera oregonana* Wlshm.
pages 46-49

No tree mortality caused by this complex of defoliators, which affect aspen and poplar primarily, has been recorded. Varying degrees of foliar damage have been recorded since 1961.

Birch Leafminer, *Fenusa pusilla* (Lep.) [Major]
page 50

Although this insect is not known to cause tree mortality, weakened trees are susceptible to secondary insects and diseases and may be a predisposing factor in birch decline. As a rule this insect is more a pest of individual ornamental trees, but when populations increase, stands of trees are severely defoliated. The highest recorded populations occurred in 1974.

Forest Tent Caterpillar, *Malacosoma disstria* Hbn. [Major]
pages 51-58

Trembling aspen, the preferred host, is seldom killed in an outbreak; however, loss of increment and vigor can leave the tree more susceptible to subsequent borer and disease damage. Major infestations were recorded from 1943 to 1945 and from 1951 to 1954.

Balsam Fir Sawfly, *Neodiprion abietis* complex [Major]
page 59

Severe defoliation can cause mortality of balsam fir and white spruce trees when an infestation persists over a period of years. Populations remained at low or endemic levels except in Jack Twp in 1965 and 1967.

Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl. [Major]
pages 60-66

This sawfly of red pine has not been a serious pest in the District. Low populations were noted from 1963 to 1967 and in 1976 and 1977. Light-to-medium defoliation was recorded in several townships in 1963 and 1967.

Jack Pine Sawfly, *Neodiprion pratti banksianae* Roh. [Major]
pages 60-66

This sawfly is capable of causing mortality of semimature and plantation jack pine trees when populations are high. Populations have remained at endemic levels throughout most years; however, in 1967 low-to-moderate damage levels were noted in Jack and Noble twps.

Swaine Jack Pine Sawfly, *Neodiprion swainei* Midd. [Major]
pages 60-66

This is the most destructive sawfly on jack pine in eastern Canada. Outbreaks prior to the period covered by this report were recorded in 1948 and 1949. Varying levels of damage were commonly reported in the District from 1950 to 1963, from 1966 to 1968 and in 1975.

Redheaded Jack Pine Sawfly, *Neodiprion virginianus* complex [Major]
pages 60-66

In the past this sawfly has not caused sufficient damage to require large-scale control measures and is often found in conjunction with *N. swainei* infestations. From 1950 to 1981, with few exceptions, populations remained low. From 1967 to 1969 high numbers were recorded in Groves Twp.

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.) [Major]
pages 67-68

Although this insect is not known to cause tree mortality, severe browning over a period of years can cause a reduction in growth. Varying degrees of infestation have been noted for most years since the insect was first recorded in 1951.

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) [Major]
pages 68-69

This insect is a serious pest of open-growing trees, ornamentals, and stands and plantations of young white spruce. High damage levels were commonly recorded between 1950 and 1952 and in 1959 and 1960.

White Pine Weevil, *Pissodes strobi* (Peck) [Major]
pages 69-71

This insect, by attacking the leaders of small spruce and pine trees, causes a reduction in height growth and after a few years of heavy infestation, "cabbaging" occurs. Damage levels have greatly fluctuated across the District throughout the recorded history of this insect.

Larch Sawfly, *Pristiphora erichsonii* (Htg.) [Major]
pages 71-72

Severe defoliation by this sawfly for 4 to 5 years will cause a loss in increment, and tree mortality can occur after 6 to 9 years. Severe infestations were recorded as early as 1938 and varying degrees of infestation have been recorded in most years to date.

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.) [Major]
pages 72-73

Although mountain-ash trees are not considered merchantable, a great number are utilized as shade trees and ornamentals in rural and urban areas. This insect can weaken trees when prolonged severe defoliation occurs and subsequent borer infestations can cause tree mortality. Populations of varying degrees of intensity have been recorded during most years since 1961.

Ambermarked Birch Leafminer, *Profenusa thomsoni* (Konow) [Major]
pages 73-74

Several years of severe leaf mining by this miner can account for loss of increment; however, as the insect feeds late in the growing season, past records have shown that damage is of little consequence. The heaviest defoliation was recorded in 1956 and 1967.

Other Noteworthy Insects [Major and Minor]
pages 75-89

These are insects with the potential for causing damage to stands, regeneration and plantations.

FOREST DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl : Fr.) Kummer [Major]
page 93

This root rot is capable of killing both weakened and healthy trees and is a particularly serious pest in pine and spruce plantations that have been planted around old stumps. Mortality was recorded in 1962, 1963 and 1971.

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard [Major]
pages 93-95

This disease can cause mortality of young trees up to a height of 1.5 m. The rate of infection has varied considerably throughout the years in which the disease has been recorded.

Spruce Needle Rust, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary [Major]
page 96

This, the most widespread rust in the Canadian boreal forest, is a concern on mature trees, but the potential for damage in a nursery can be high. To date, infection rates and damage levels have fluctuated greatly throughout the District.

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver [Major]
page 97

As a rule, severe defoliation by this foliar disease results only in loss of increment; no tree mortality has been reported to date. Foliar damage levels have varied greatly throughout the recorded history of this disease across the District.

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur [Major]
page 98

This fungus causes stem cankers of jack pine but tree mortality is usually restricted to trees under 7 cm DBH. Stem cankers on larger trees can cause volume loss of up to 11%. The disease is not as serious in natural stands as in plantations because a number of trees always survive infection. Light damage levels of this disease were first reported in the Gogama nursery in 1964.

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer [Major]
pages 98-99

This destructive disease is damaging to white pine trees of all ages, but especially young trees, which are girdled and killed by the canker. Varying rates of infection have been reported to date throughout the range of the host.

Tar Spot Needle Cast, *Davisomycella ampla* (J. Davis) Darker [Major]
page 99

In 1963 this disease accounted for severe levels of foliage drop of the previous year's needles in jack pine stands across the District. Levels of damage varied in all other years the disease was reported.

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller [Major]
page 100

This disease usually attacks the stems of immature trees between 7 and 13 cm in diameter, growing on poor sites, but also attacks upper stems and branches of larger trees. The rates of infection and mortality have varied throughout the history of this disease in the District.

Shoot Blight, *Venturia macularis* (Fr.) MUller & v. Arx [Major]
pages 100-101

This foliage and tip disease is particularly damaging to leaders of reproduction aspen. Incidence rates recorded since 1960 have varied considerably.

Other Noteworthy Diseases
pages 101-103

These are diseases with the potential for causing damage to stands, regeneration and plantations.

ABIOTIC DAMAGE

pages 107-109

This condition is caused by a variety of influences, e.g., frost, winter drying, etc. Weakened trees are then susceptible to damage by other diseases. Severe abiotic damage has been recorded periodically since 1955.

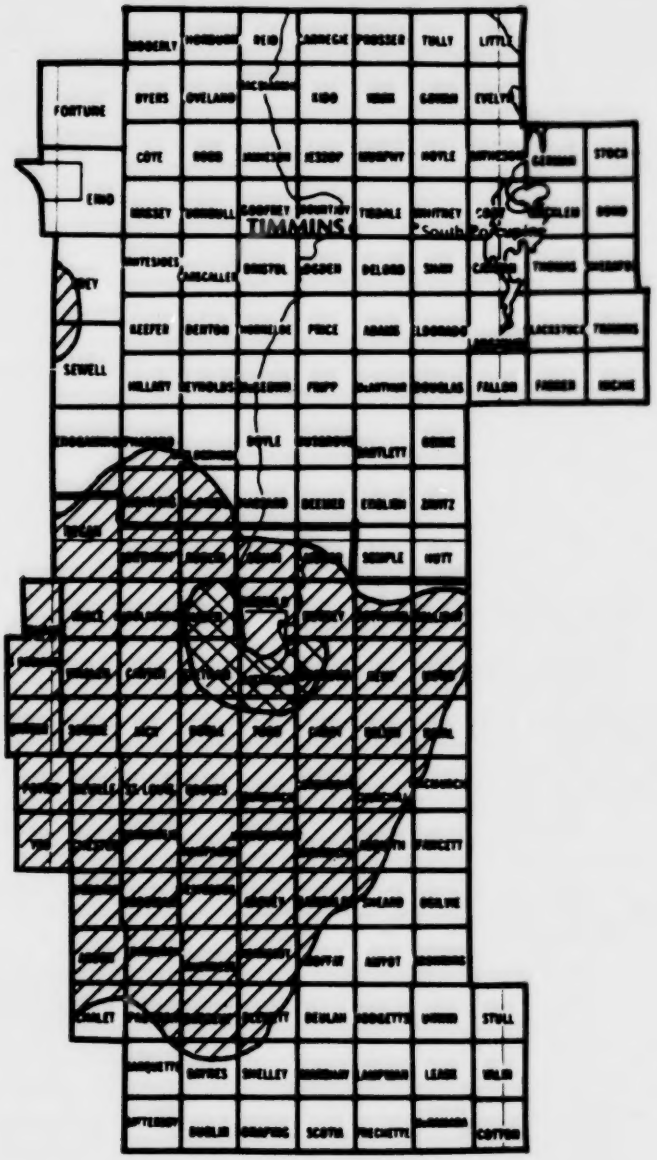
INSECTS

Birch Skeletonizer, *Bucculatrix canadensisella* Cham.

Host(s): wB [Major]

Year	Remarks
1950-1953	not reported
1954	An outbreak of medium-to-heavy infestation was reported throughout the entire District.
1955	The infestation collapsed to endemic levels.
1956-1959	not reported
1960	light infestations on lakeshore white birch trees in Onaping Twp
1961-1962	not reported
1963	A light infestation occurred throughout most of the District, with moderate-to-heavy infestations recorded in the Mattagami and Hazen twps area (see map, page 12).
1964	Almost all white birch stands in the District suffered light defoliation except in the southwestern corner where medium-to-heavy infestations occurred (see map, page 13).
1965	Infestations declined generally to light intensity; however, small pockets of white birch suffered moderate-to-severe defoliation in Groves, Natal and Togo twps
1966	Population levels varied throughout the District.
1967	Population levels generally declined; a few scattered areas of light defoliation were observed. The heaviest defoliation occurred on overstory trees in Togo Twp, where 42% of the leaves were infested.
1968-1971	not reported
1972	Light defoliation was recorded in Regan, Northrup, Roblin, Gouin and Moher twps.
1973	A large infestation of moderate-to-severe defoliation centered in Hodgetts Twp covered most of the southeastern portion of the District; light damage was common throughout the eastern half of the District (see map, page 14).
1974-1976	not reported
1977	trace numbers recorded in Ogilvie Twp
1978-1980	not reported

TIMMINS AND GOGAMA DISTRICTS



BIRCH SKELETONIZER

Areas within which defoliation occurred in 1963

LEGEND

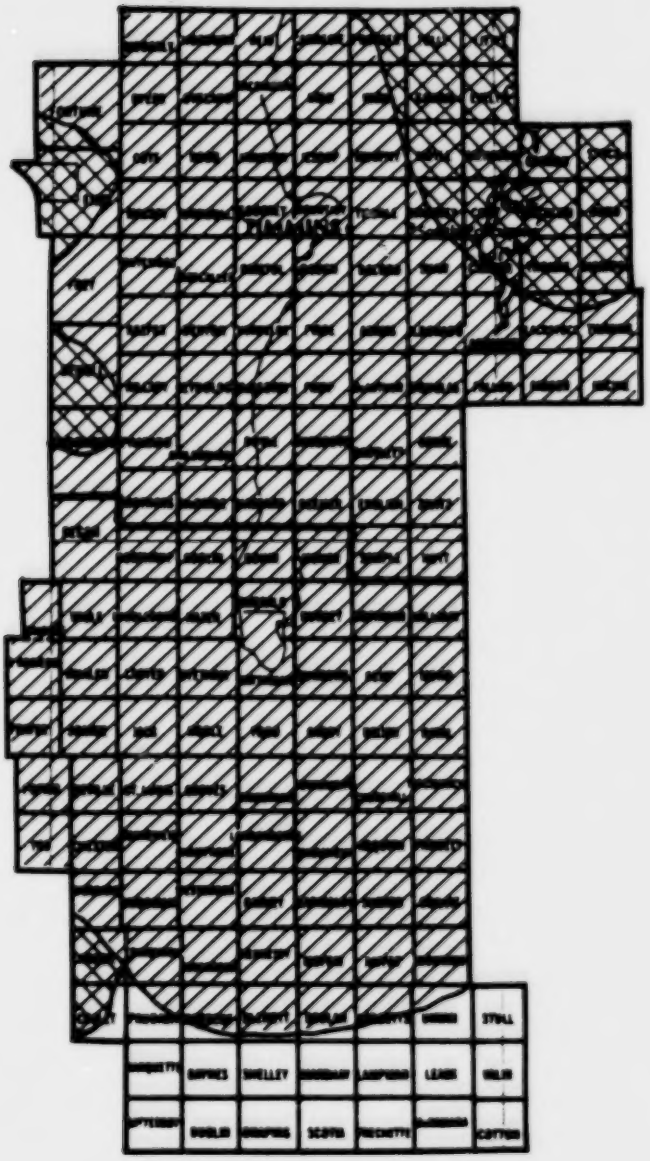
Light defoliation

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



BIRCH SKELETONIZER

Areas within which defoliation occurred in 1964

LEGEND

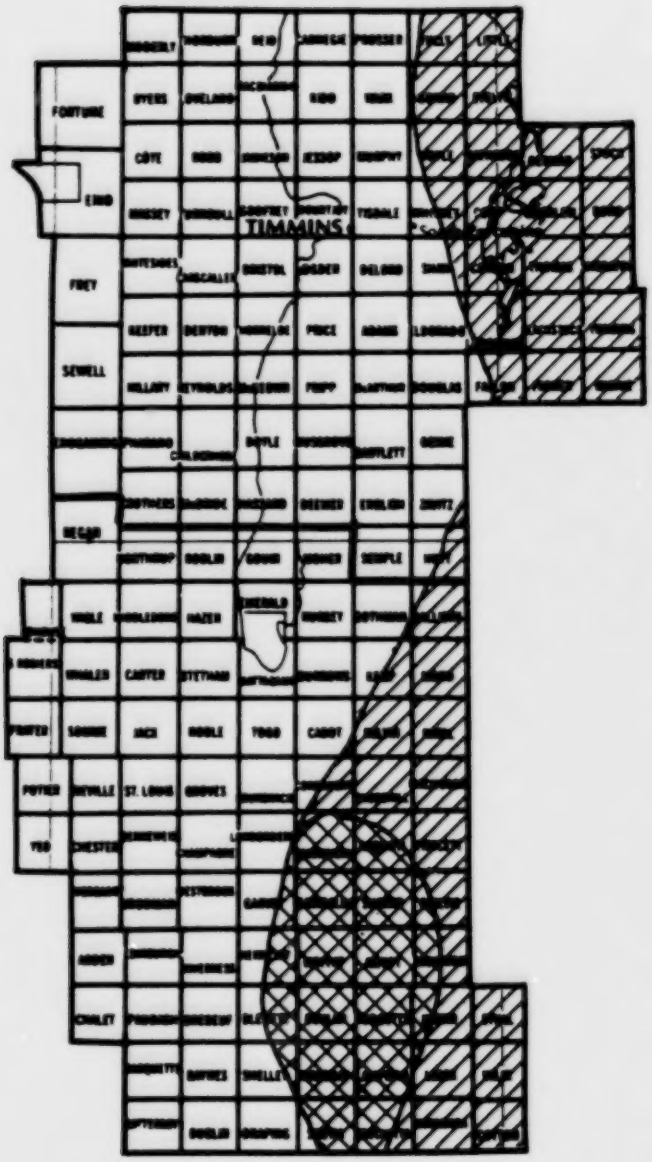
Light defoliation

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



BIRCH SKELETONIZER

Areas within which defoliation occurred in 1973

LEGEND

Light defoliation

Moderate-to-severe defoliation

0 KM 40

SCALE

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.)

Host(s): tA [Major]

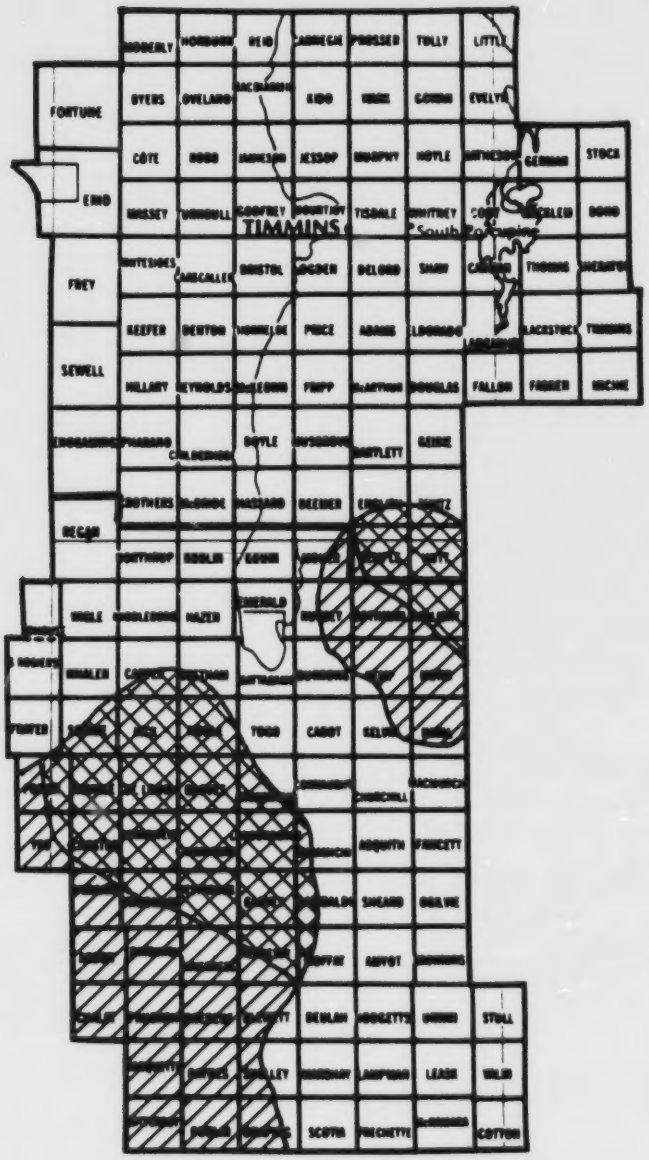
Year	Remarks
1950-1955	not reported
1956	trace numbers recorded
1957	In the southwestern portion of the District a medium-to-heavy infestation occurred and light infestations were present in large areas adjacent to the medium-to-heavy infestation.
1958	Pockets of medium-to-heavy infestation occurred in the northeastern corner and in the western half of the District. Light infestations were recorded south of these infestations (see map, page 17).
1959	A small pocket of moderate-to-severe defoliation was recorded in Cotton Twp; otherwise all heavy infestations recorded in the previous year declined to small pockets, the largest that remained being approximately 30 km^2 in Fawcett and Macmurchy twps.
1960	A further decline in size and intensity of infestation occurred. Only small pockets of moderate-to-severe defoliation remained in Fawcett, Macmurchy, Garvey and St. Louis twps.
1961-1966	not reported
1967	a single collection in Groves Twp
1968	low numbers in Gouin Twp
1969	not reported
1970	light infestations recorded in Wigle, Lampman and Marshay twps
1971	a few scattered pockets of moderate-to-severe defoliation in the northwest portion of the District (see map, page 18)
1972	a large area of moderate-to-severe defoliation in the northwestern portion of the District (see map, page 19)

(cont'd)

Large Aspen Tortrix, *Choristoneura conflictana* (Wlk.) (concl.)

Year	Remarks
1973	high populations at several locations (see map, page 20)
1974	no infestations reported in Gogama
1975	not reported
1976	low numbers throughout District
1977-1978	low numbers at scattered locations
1978-1980	not reported

TIMMINS AND GOGAMA DISTRICTS



LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1958

0 KM 40

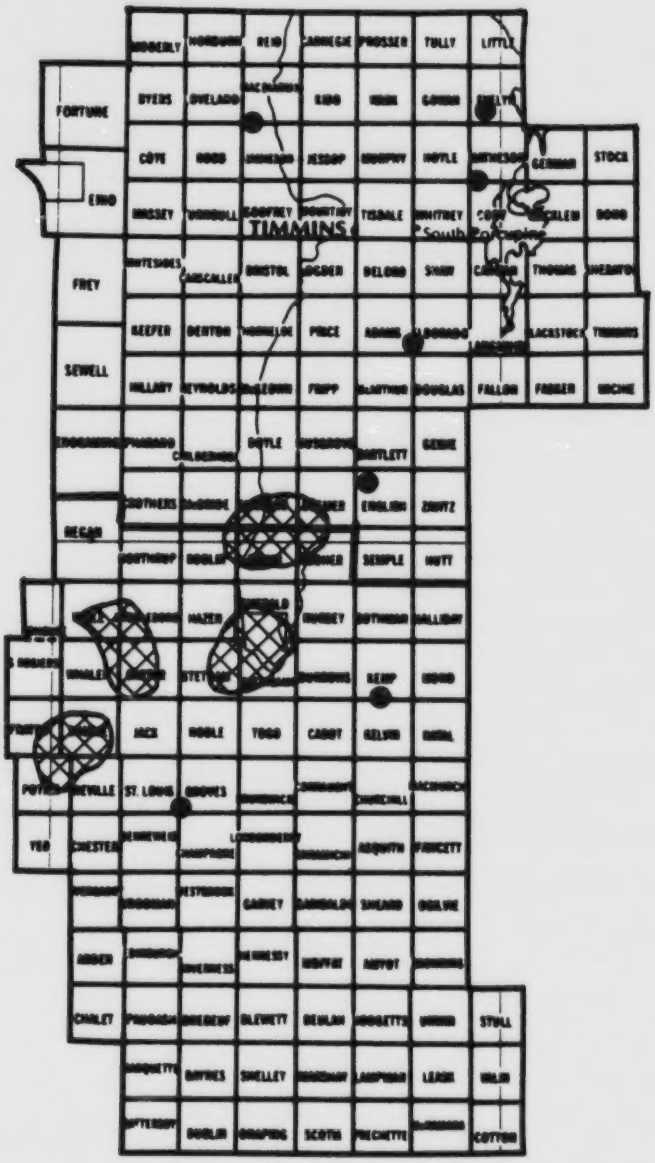
SCALE

LEGEND

Light defoliation

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



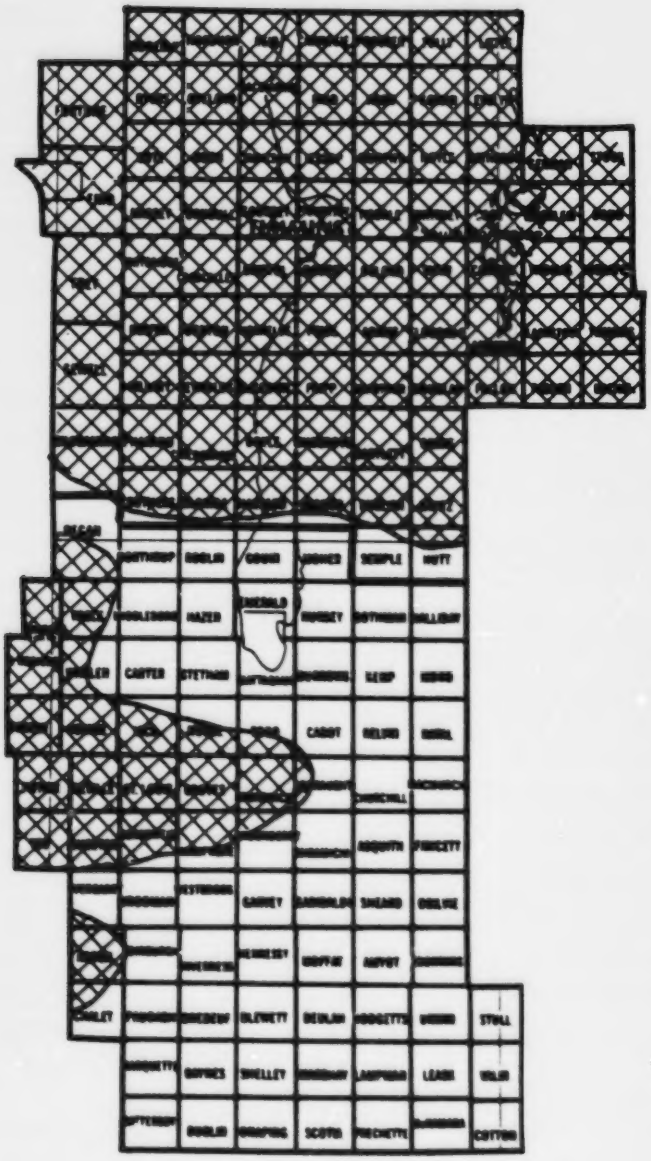
LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1971

LEGEND

Moderate-to-severe defoliation ● or

TIMMINS AND GOGAMA DISTRICTS



LARGE ASPEN TORTRIX

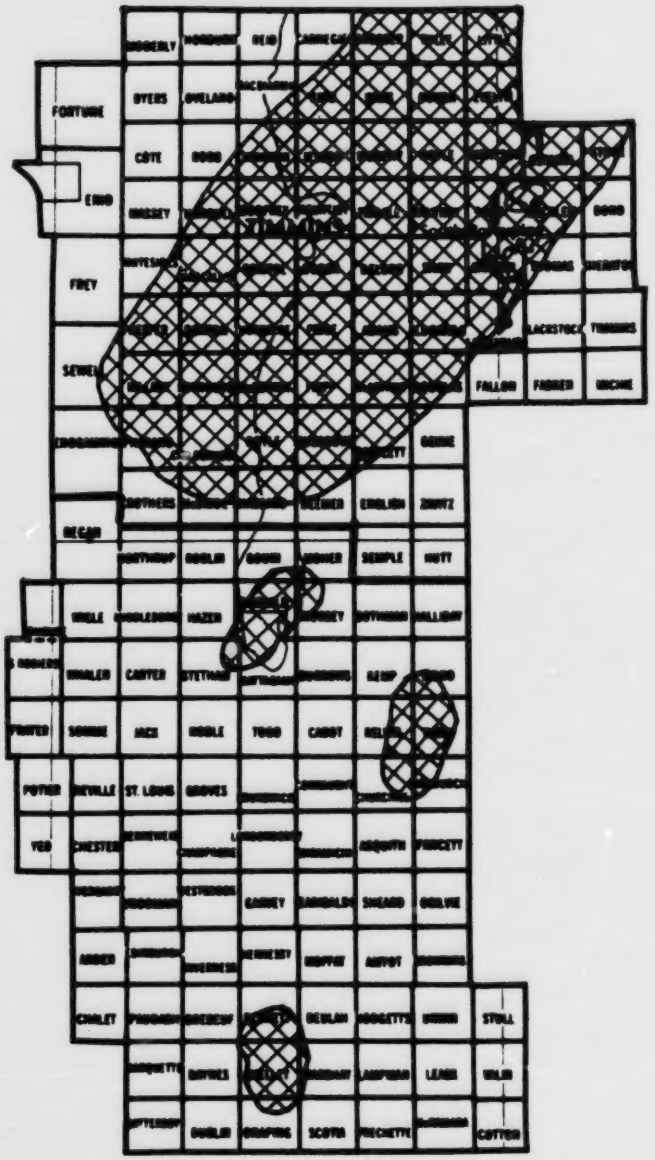
Areas within which defoliation occurred in 1972

0 KM 40
SCALE

LEGEND

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



LARGE ASPEN TORTRIX

Areas within which defoliation occurred in 1973

LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

Spruce Budworm, *Choristoneura fumiferana* (Clem.)

Host(s): wS, bF, eH, tL [Major]

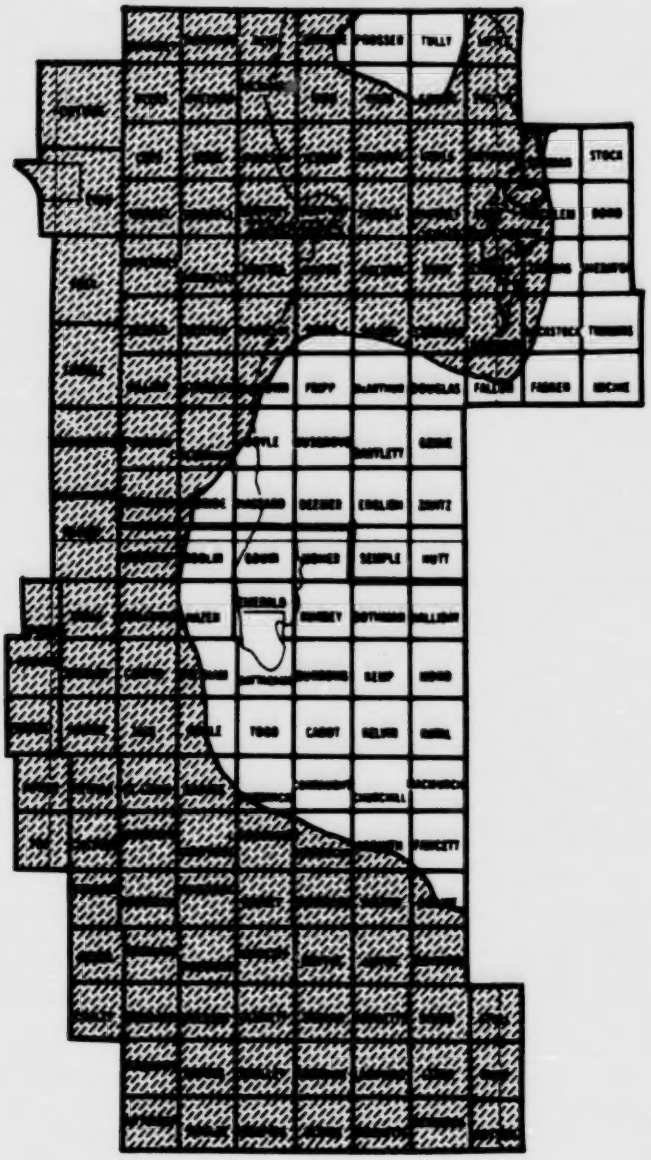
Year	Remarks
1950	Tree mortality was general throughout the District (see map, page 23).
1951-1952	endemic populations
1953-1959	not reported
1960-1965	endemic populations
1966	common on beating mat samples in the central portion of the District
1967	not reported
1968	A medium-to-heavy infestation occurred in Emerald and Gouin twps (see map, page 24).
1969	The infestation in Asquith Twp spread. The infestation in Emerald and Gouin twps increased to heavy intensity. Eight additional infestations ranging in size from 1 to 90 km^2 occurred in the District (see map, page 25).
1970	There was a major enlargement of the infestation in the southern part of the District. A new major medium-to-heavy infestation of approximately 60,000 ha was mapped north of the village of Gogama (see map, page 26).
1971	The infestation in the southern part of the District and near the village of Gogama increased. Small pockets of medium-to-heavy infestation were noted elsewhere in the District (see map, page 27).
1972	The infestation in the southern part of the District merged with the northern infestation and the Chapleau infestation (see map, page 28). Balsam fir tree mortality was observed in Shelley, Scotia, and Frechette twps.
1973	There was moderate-to-severe defoliation throughout the District except for a small area in the northeastern corner (see map, page 29). In addition to the mortality reported in 1972 light mortality recurred in the southern part of the District (see map, page 30).

(cont'd)

Spruce Budworm, *Choristoneura fumiferana* (Clem.) (concl.)

Year	Remarks
1974	There was moderate-to-severe defoliation throughout the District (see map, page 31). The area of mortality previously recorded in the southern part of the District expanded (see map, page 32).
1975	There was moderate-to-severe defoliation throughout the District (see map, page 33), with heavy tree mortality throughout Shelley, Marshay, Dublin, Onaping, Scotia, Frechette and McNamara twps (see map, page 34).
1976	There was moderate-to-severe defoliation throughout the District (see map, page 35). The area of mortality increased and extended northward into Miramichi and Asquith twps (see map, page 36).
1977	There was moderate-to-severe defoliation throughout the District except along the southern District boundary where a reduction of populations occurred. Much of the balsam fir in this area was dead and budworm populations had collapsed (see map, page 37). There was heavy tree mortality throughout the southeastern corner of the District (see map, page 38).
1978	No appreciable change occurred in infestation boundaries (see map, page 39). There was an increase of 17% in mortality, with numerous areas of heavy tree mortality throughout the southern half of the District (see map, page 40).
1979	Infestation boundaries remained unchanged in 1979 (see map, page 41). Mortality of balsam fir increased about 18% with newly dead stands occurring in the northern and western parts of the District (see map, page 42).
1980	Infestations spread into McNamara, Cotton, Frechette and Scotia townships (see map, page 43). Mortality increased about 3% throughout the District (see map, page 44).

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1950

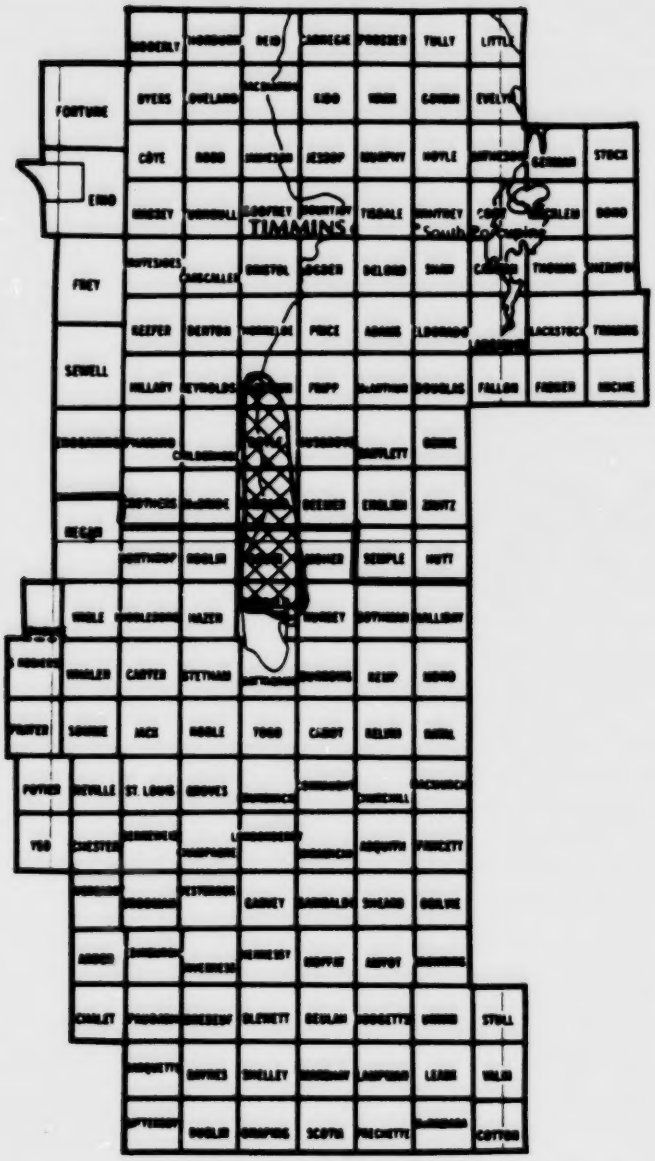
LEGEND

Mortality

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1968

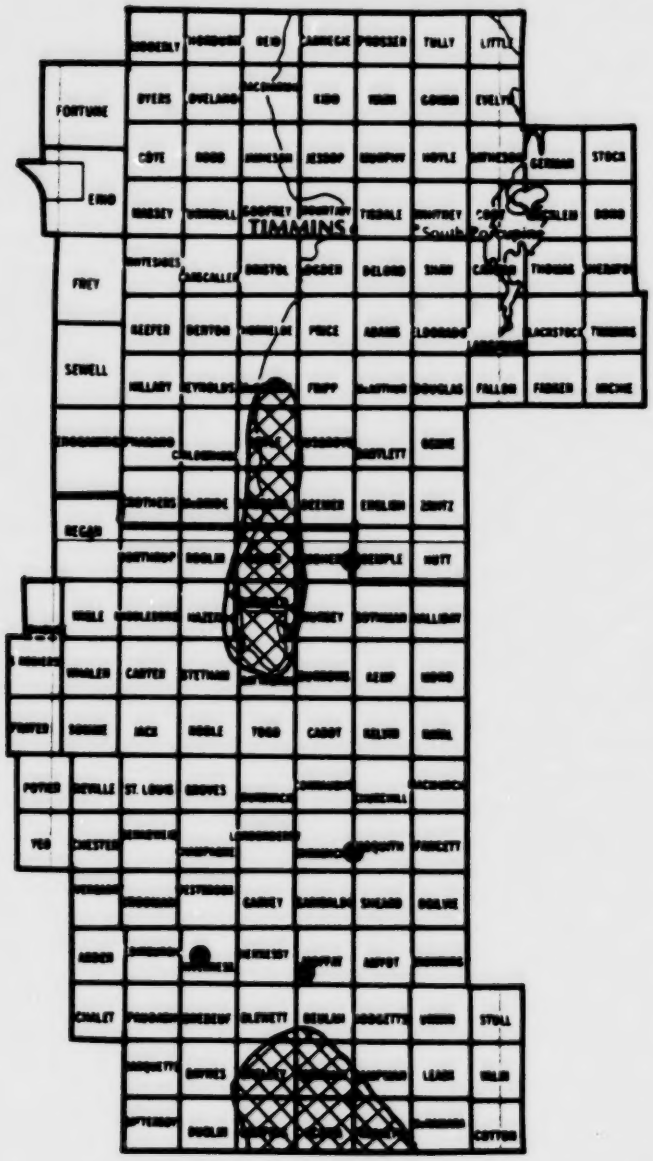
LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1969

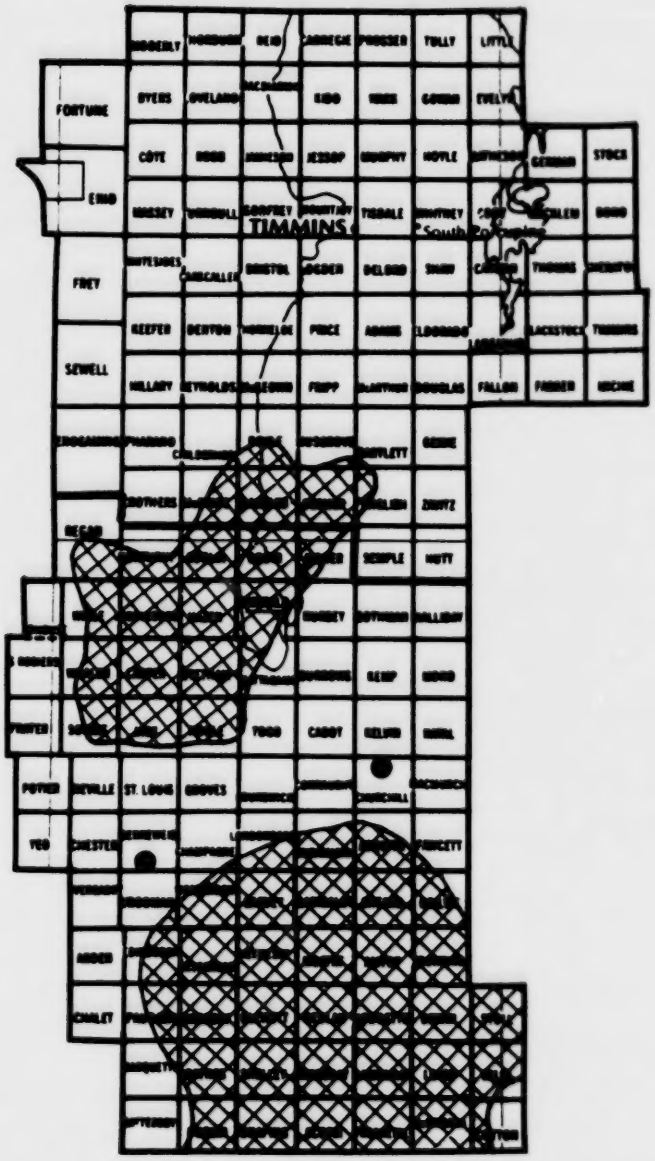
0 KM 40

SCALE

LEGEND

Moderate-to-severe defoliation ● or

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1970

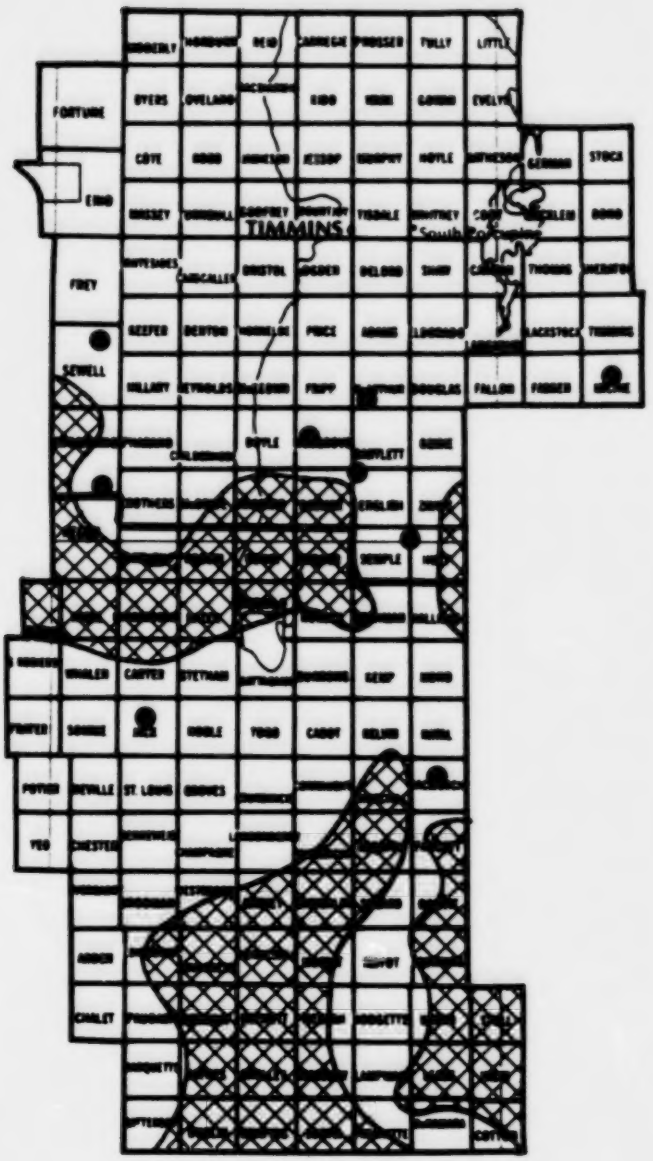
LEGEND

Moderate-to-severe defoliation ● or

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1971

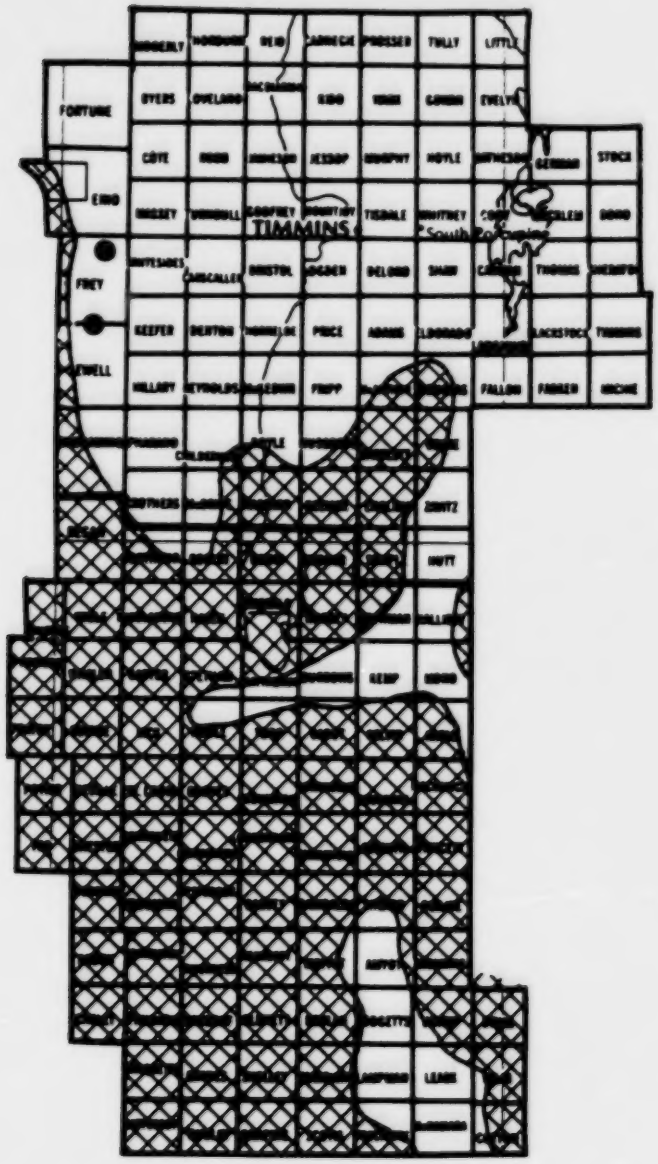
LEGEND

Moderate-to-severe defoliation ● or

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1972

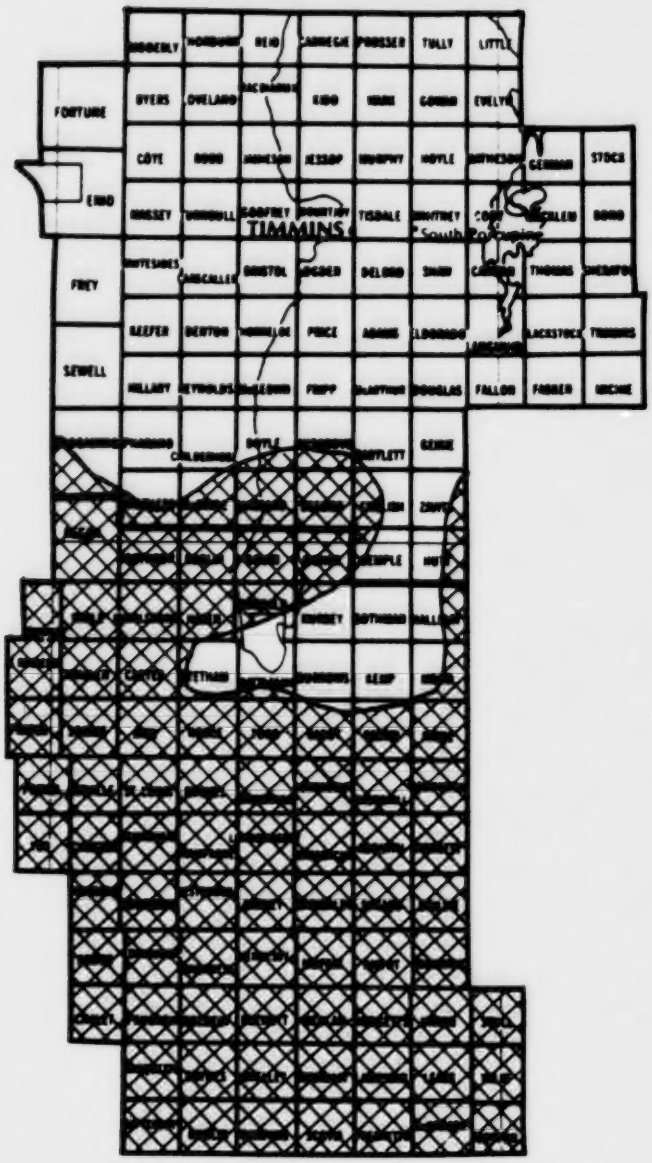
0 KM 40

SCALE

LEGEND

Moderate-to-severe defoliation ● or

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1973

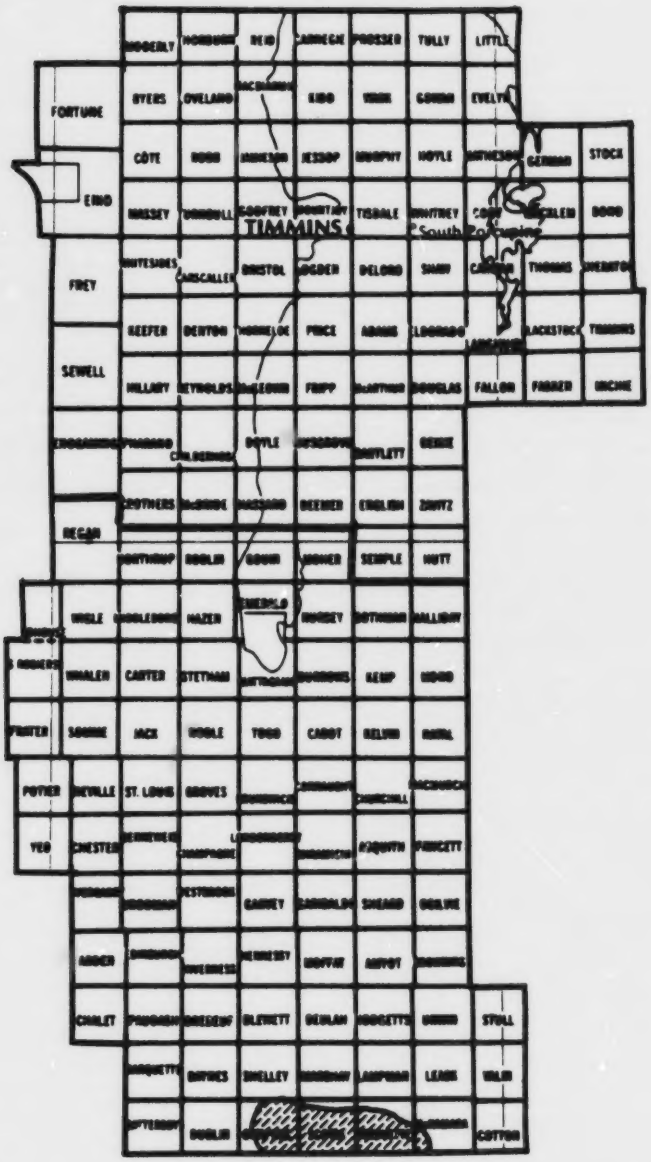
LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1973

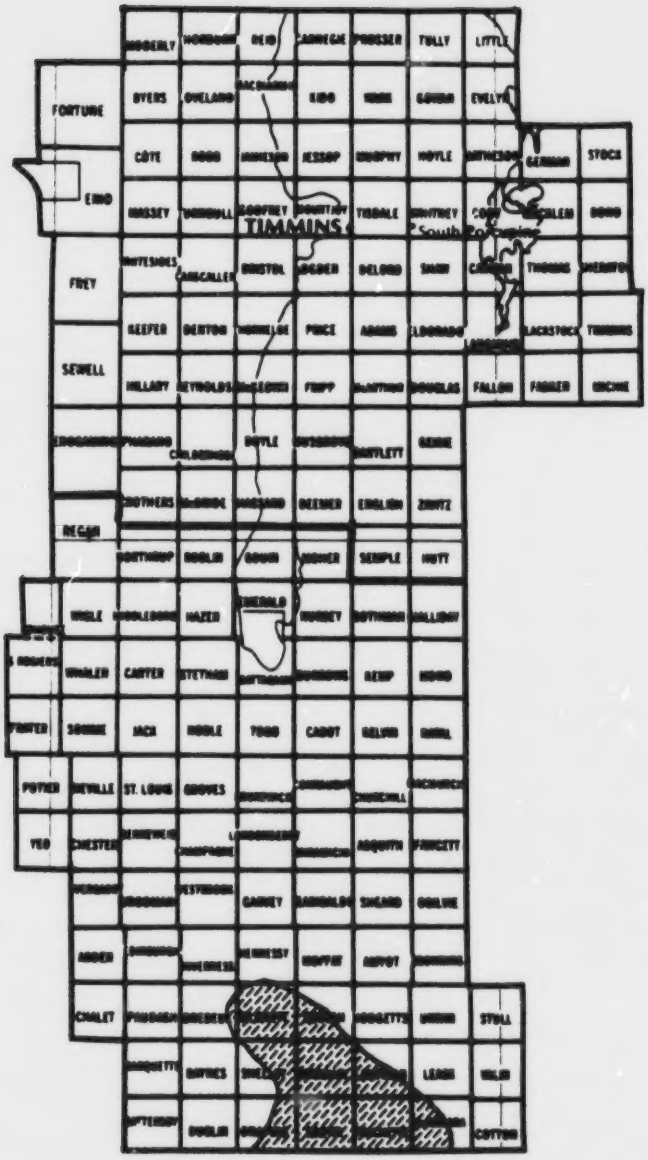
0 KM 40

SCALE

LEGEND

Mortality

TIMMINS AND GOGAMA DISTRICTS



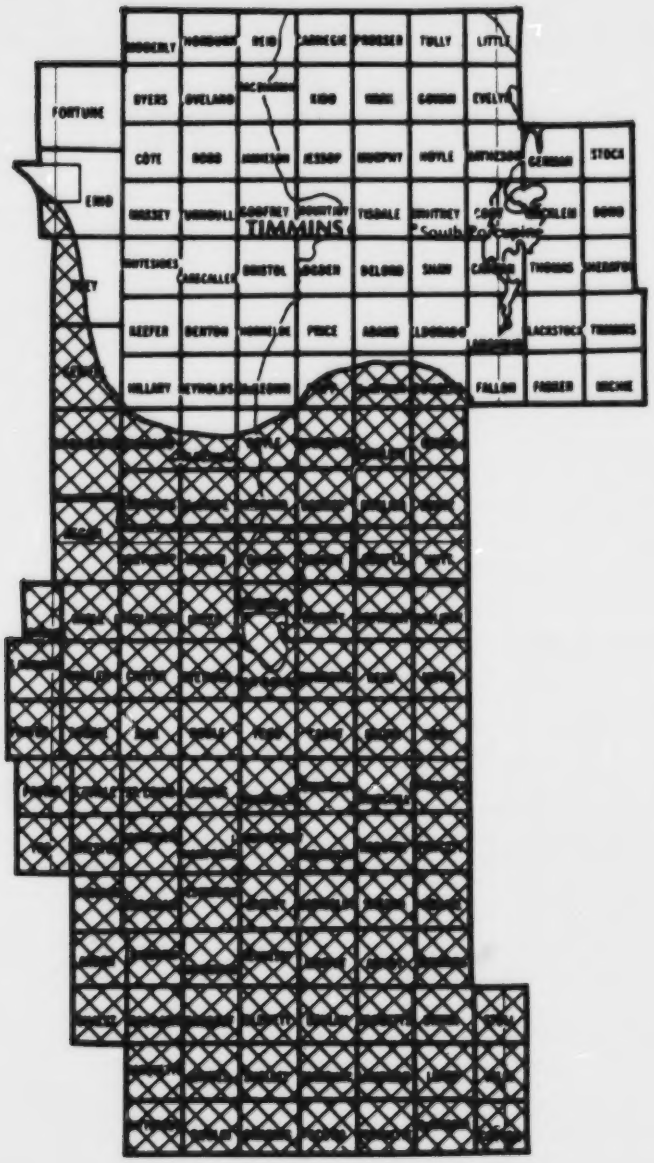
SPRUCE BUDWORM

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1974

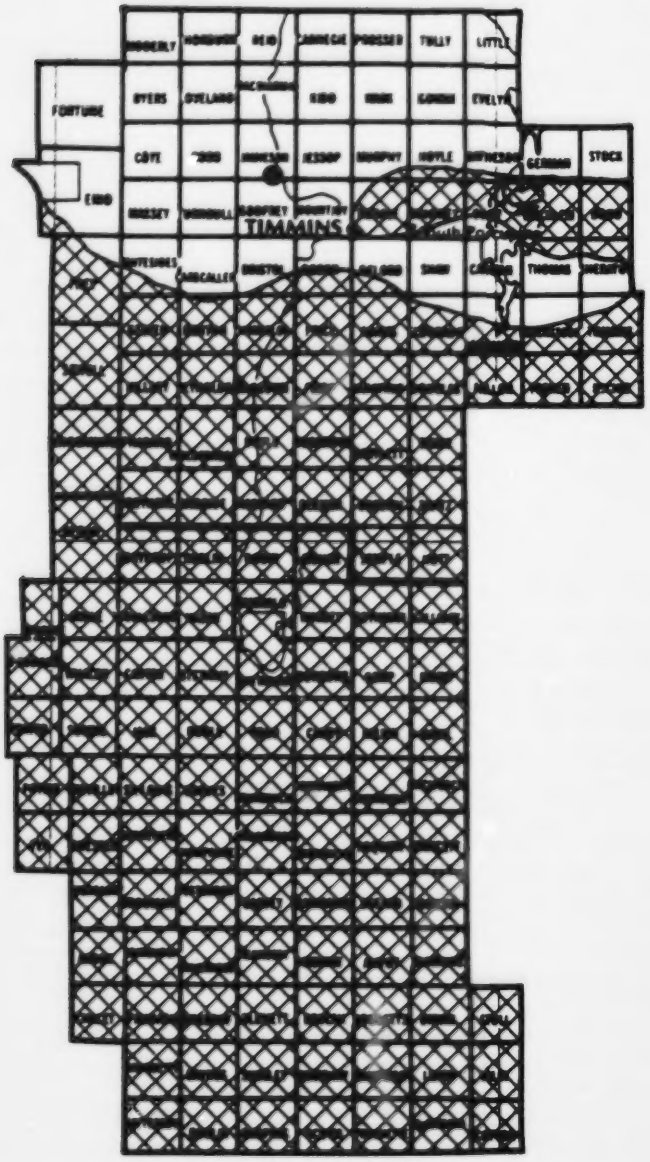
0 KM 40

SCALE

LEGEND

Mortality

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1975

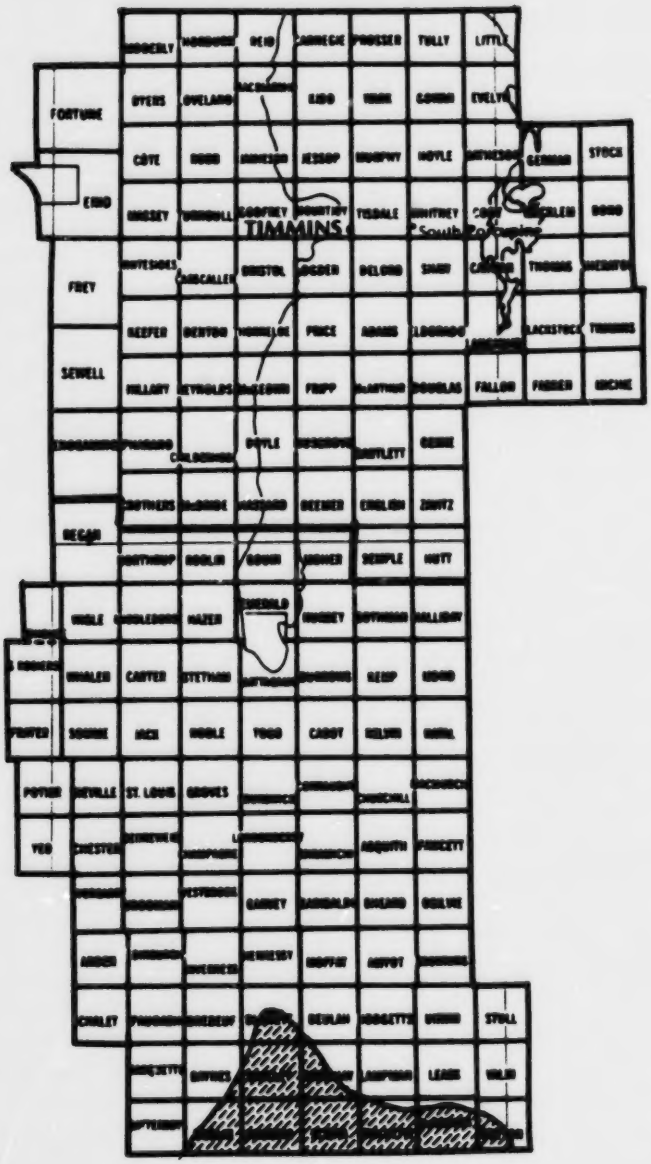
LEGEND

Moderate-to-severe defoliation ● or

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1975

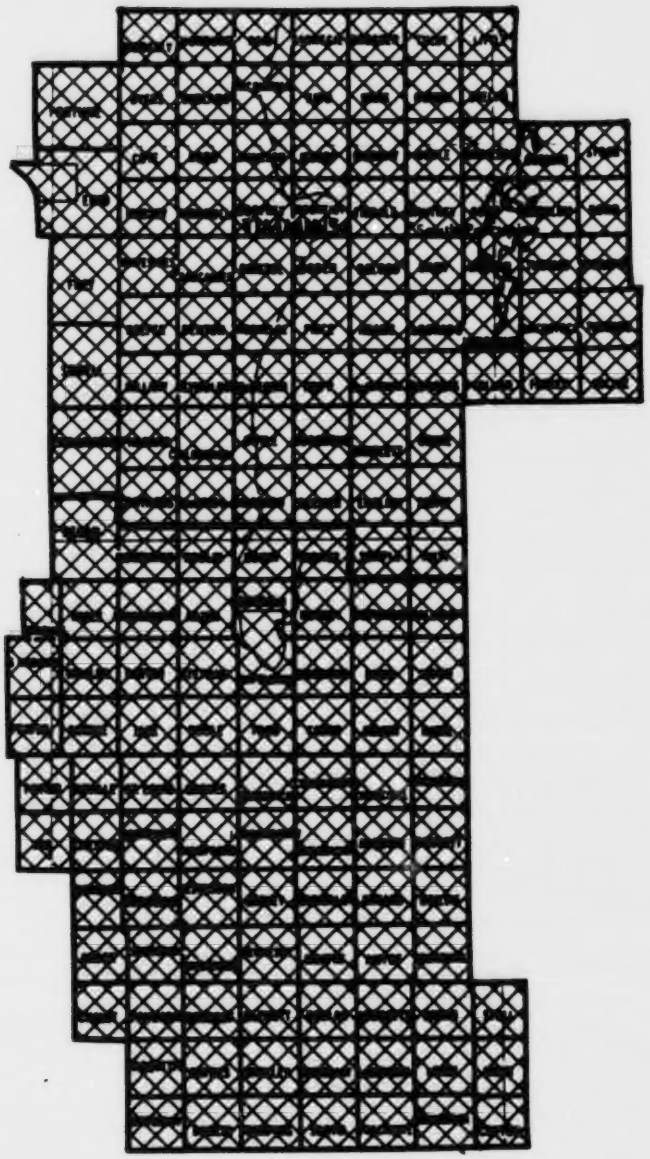
LEGEND

Mortality

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1976

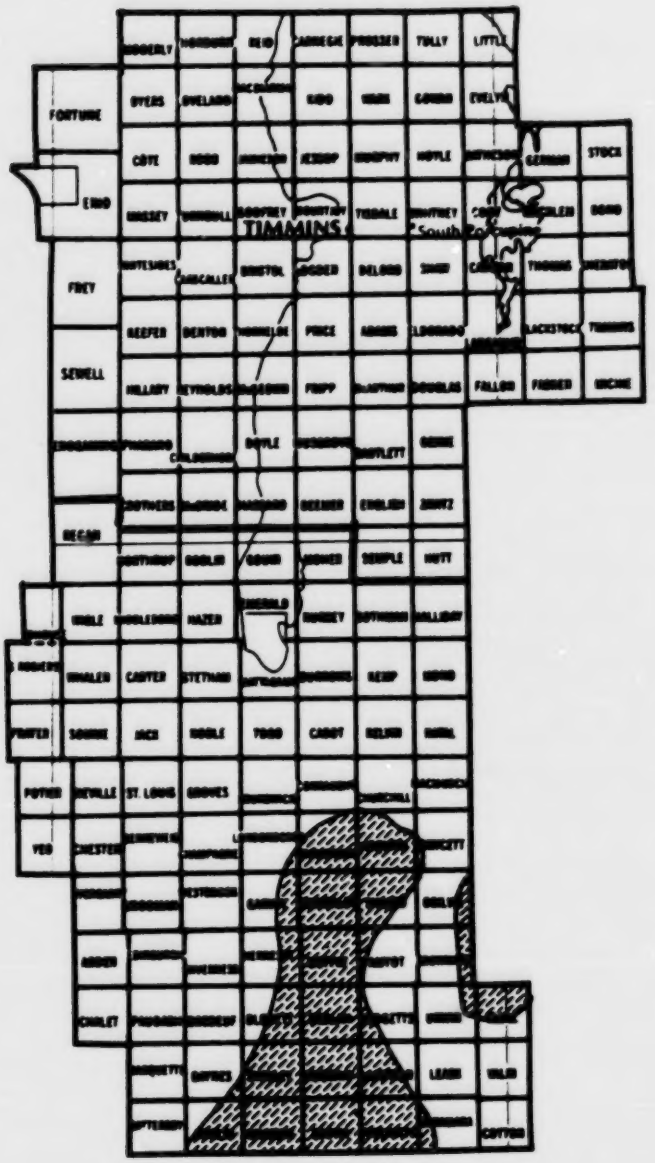
LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

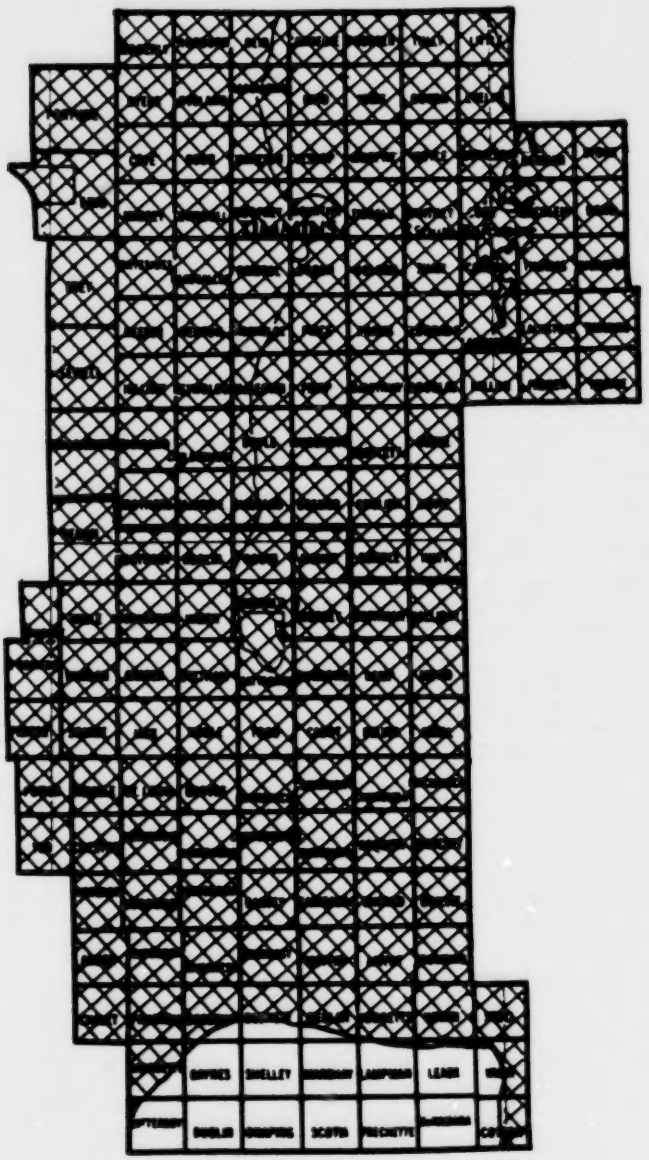
Areas within which balsam fir whole tree and top mortality occurred in 1976

0 KM 40
SCALE

LEGEND

Mortality

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

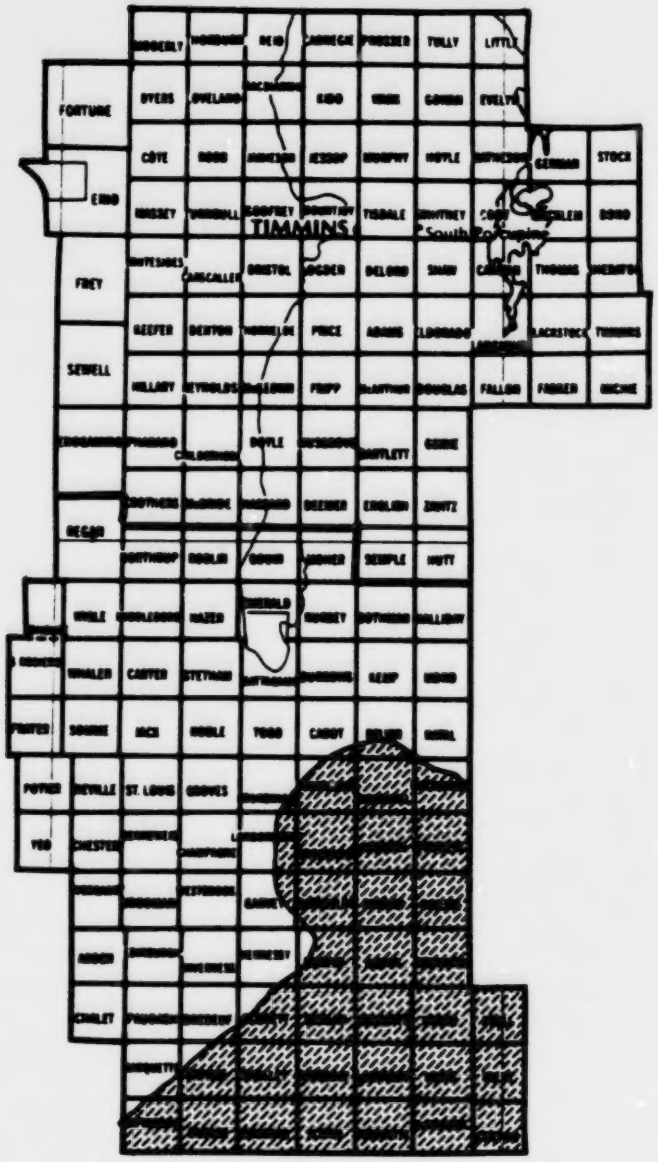
Areas within which defoliation occurred in 1977

0 KM 40
SCALE

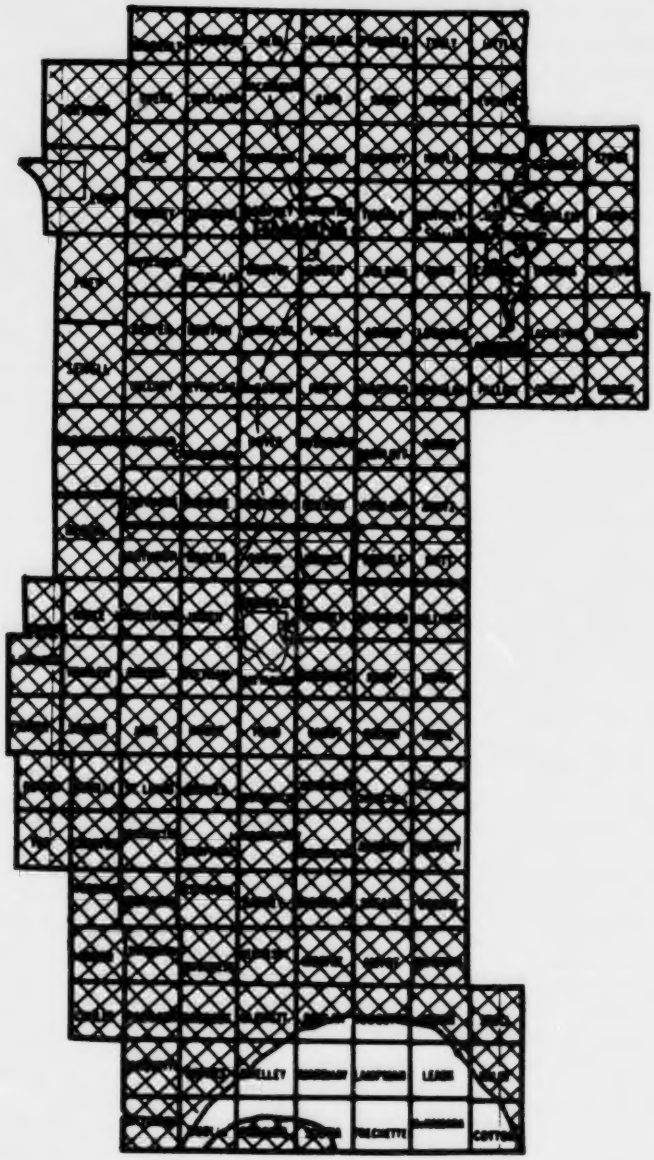
LEGEND

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1978

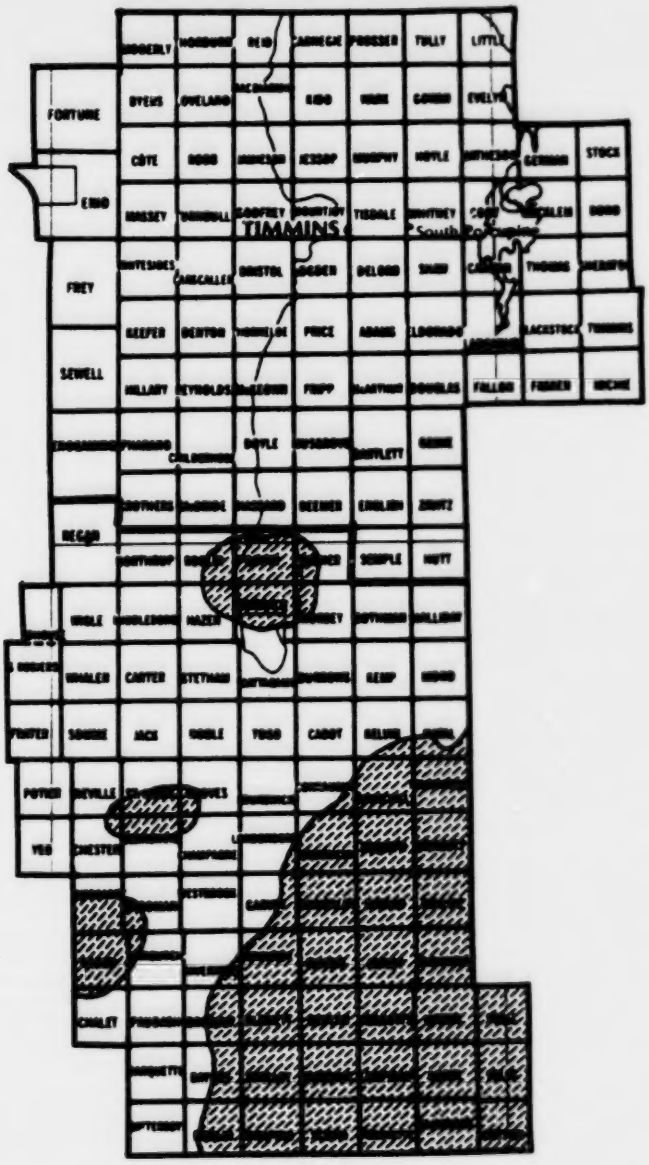
LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1978

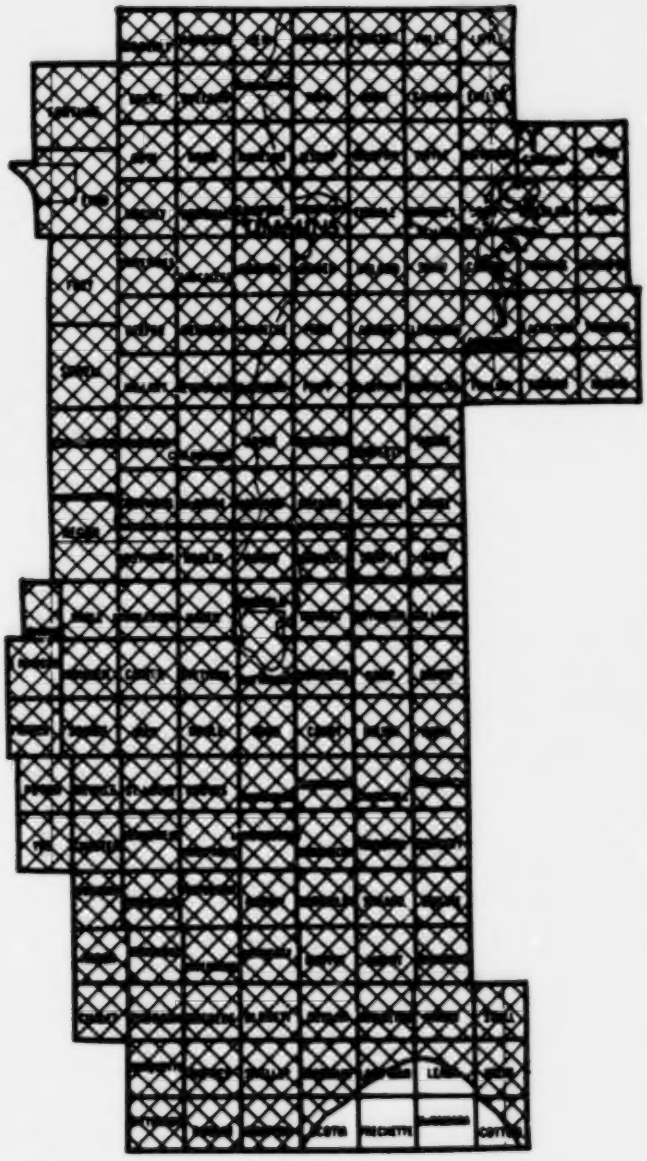
0 KM 40

SCALE

LEGEND

Mortality

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which defoliation occurred in 1979

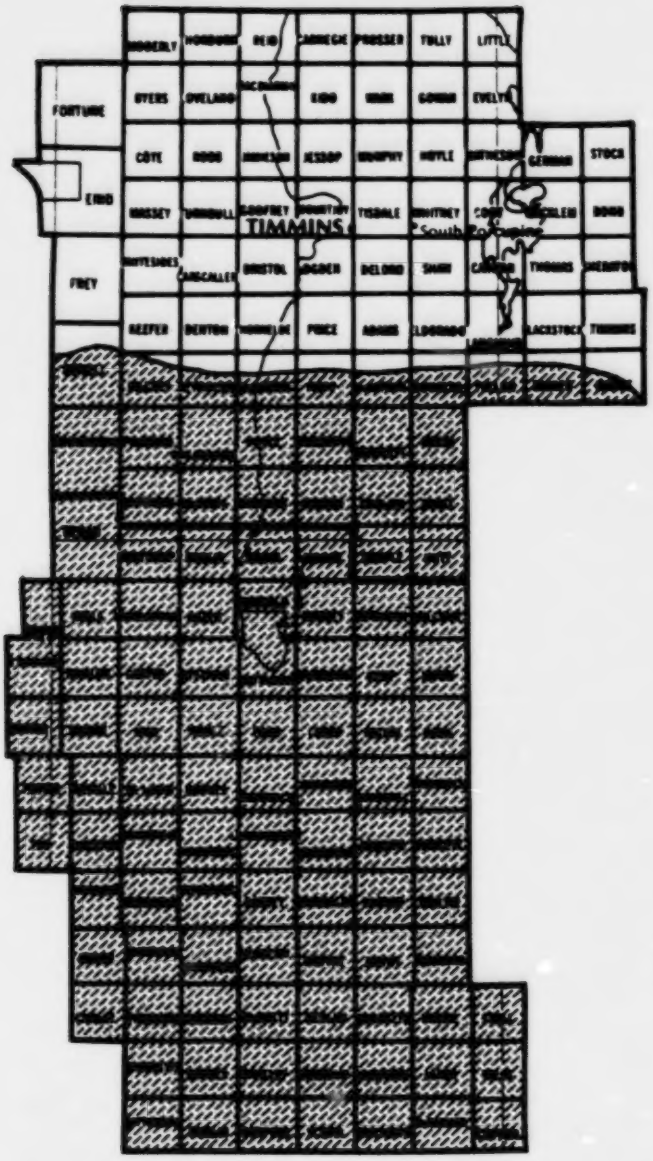
LEGEND

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1979

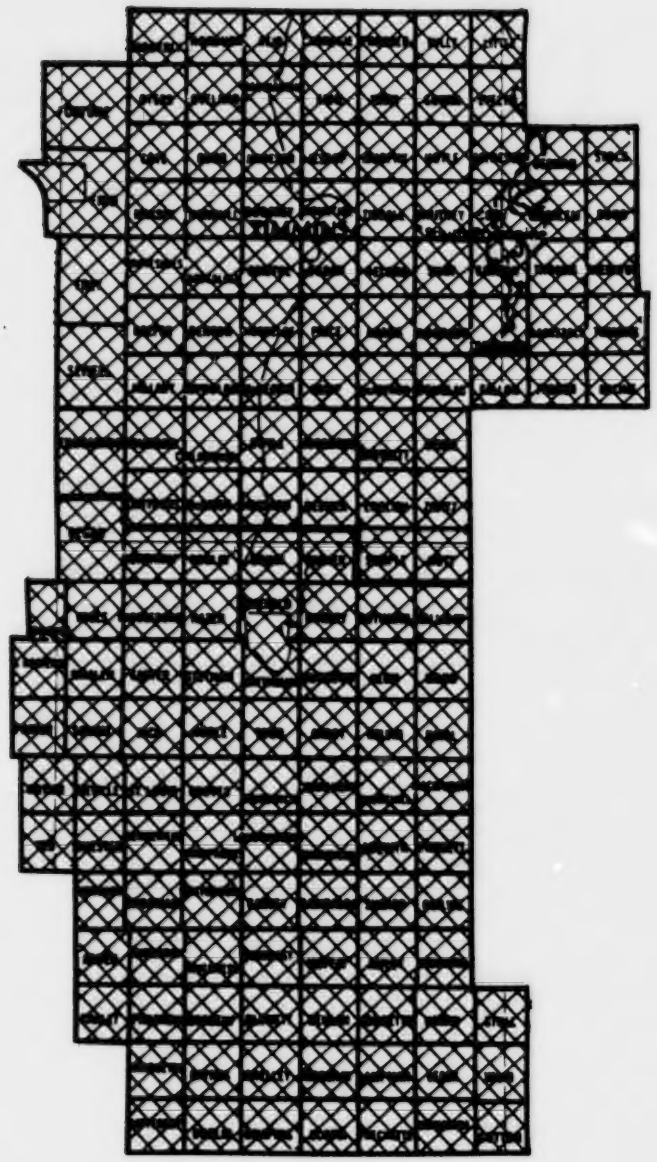
LEGEND

Mortality

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

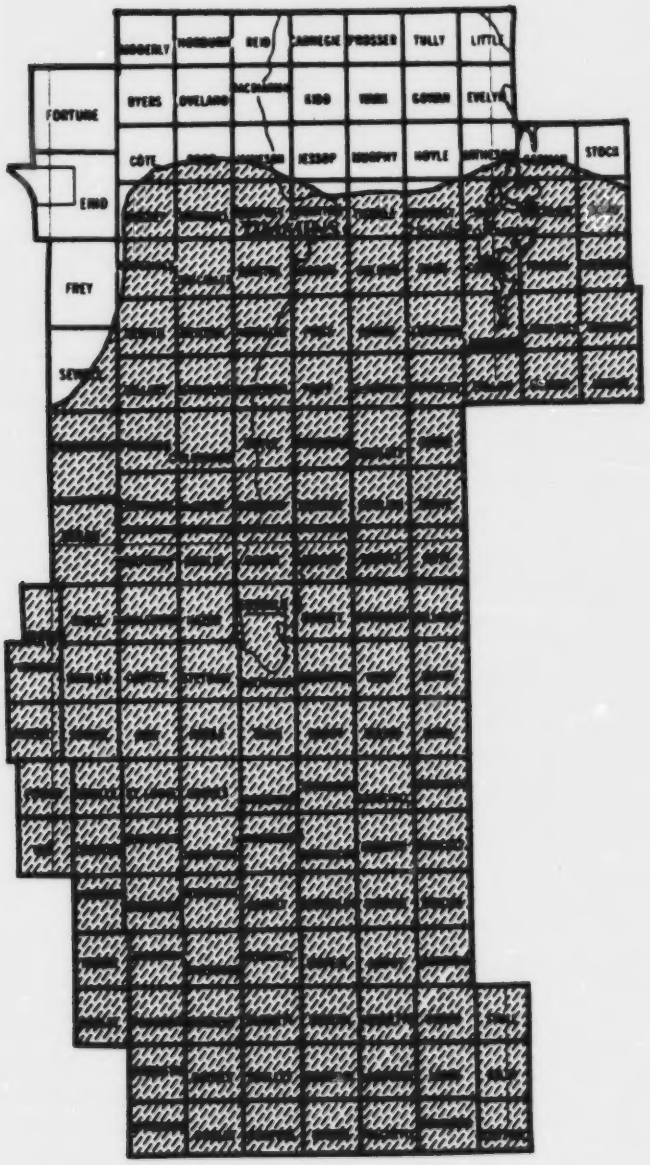
Areas within which defoliation occurred in 1980

0 KM 40
SCALE

LEGEND

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



SPRUCE BUDWORM

Areas within which balsam fir whole tree and top mortality occurred in 1980

0 KM 40
SCALE

LEGEND

Mortality

Jack Pine Budworm, *Choristoneura pinus pinus* Free.

Host(s): jP, rP [Major]

Year	Remarks
1950-1966	not reported
1967	light infestation in a small clump of jack pine in Jack Twp; common elsewhere in Jack and Noble twps
1968	light infestation in Noble and Hallam twps
1969-1974	not reported
1975	light populations in Westbrook Twp
1976-1980	not reported

Jack Pine Tip Beetle, *Conophthorus banksianae* McPherson

Host(s): jP [Minor]

Year	Remarks
1950-1959	not reported
1960	light infestation in current shoots of jack pine at Kenetogami Lake in Stetham Twp
1961	High numbers were present in Jack Twp; quantitative counts showed 76% of the trees and an average of 217 shoots per tree affected. The light infestation in Stetham Twp continued.
1962	light populations present in jack pine regeneration in cutover and burnt-over areas of Benneweis, Champagne, Vrooman and Westbrook twps and part of Jack Twp
1963-1967	populations lighter but confined to the same area
1968-1974	not reported
1975-1979	light shoot mortality common throughout District
1980	Between 15 and 22% of the trees were attacked.

Greenstriped Mapleworm, *Dryocampa rubicunda rubicunda* (Fabr.)

Host(s): rM, sM [Major]

Year	Remarks
1950-1954	not reported
1955	There was a light infestation in Asquith Twp. In Benneweis Twp defoliation of 15% was recorded on red maple reproduction.
1956	Light infestation continued in Asquith Twp. Red maple reproduction was lightly defoliated along the Westree Road, along the Sinclair Road and in Sheard, Ogilvie and Browning twps.
1957	Light infestation continued along the Westree, Westmac and Sinclair roads; light infestation was observed in many locations in the southern part of the District.
1958	Populations in all areas infested in 1957 declined to low levels in 1958.
1959-1980	not reported

Aspen Defoliators: Aspen Twoleaf Tier, *Enargia decolor* (Wlk.) and Aspen Leafroller, *Pseudexentera oregonana* Wlshm.

Host(s): tA [Major]

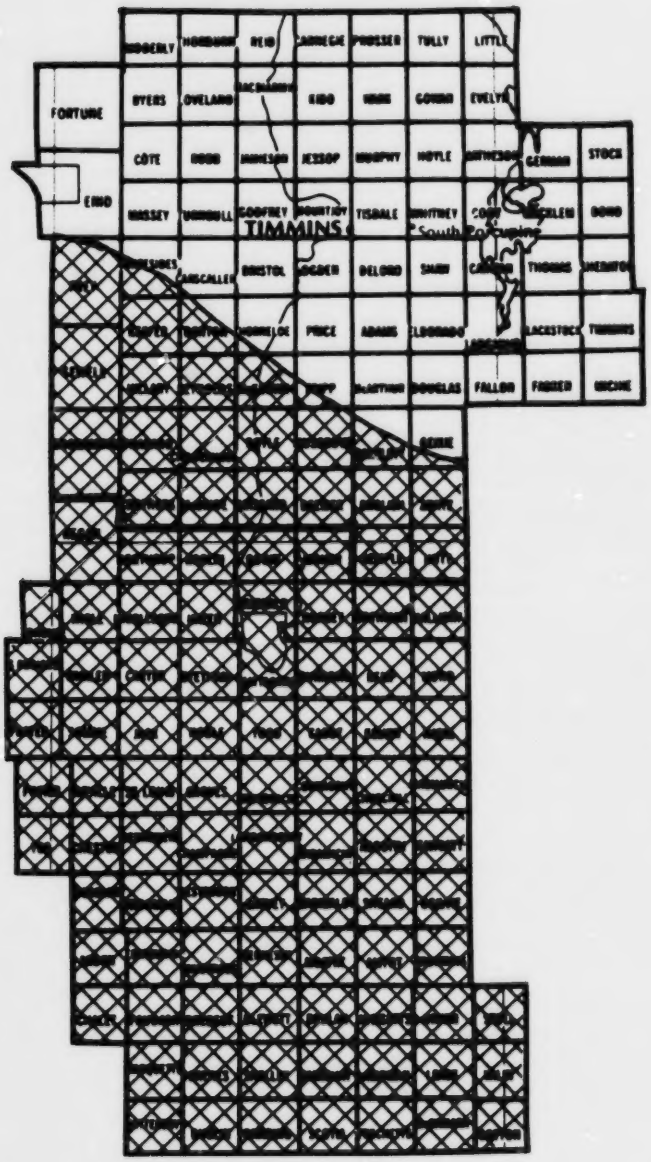
Year		Remarks
1950-1960		not reported
1961	*E. decolor*	moderate-to-severe defoliation in Moffat, Noble, St. Louis, Togo and Whalen twps; areas of light infestation common
1962	*E. decolor*	moderate-to-severe defoliation widespread in District
1963	*E. decolor*	Populations declined to light intensity north of Hwy 560.
1964	*E. decolor*	pockets of light-to-medium infestation in Noble Twp
	P. oregonana	light infestation in Noble Twp

(cont'd)

Aspen Defoliators: Aspen Twoleaf Tier, *Enargia decolor* (Wlk.), and Aspen Leafroller, *Pseudexentera oregonana* Wlshm. (concl.)

Year		Remarks
1965	*P. oregonana*	widely scattered clumps of light infestation
1966	*P. oregonana*	a few light infestations in the north-western portion of the District
1967		not reported
1968	*P. oregonana*	low levels in Gouin Twp
1969	*E. decolor*	moderate-to-severe defoliation in Kelvin Twp
1970	*E. decolor*	medium-to-heavy infestations throughout the District (see map, page 48)
1971	*E. decolor*	endemic levels
1972	*E. decolor*	light defoliation common in District
1973-1975		not reported
1976	*P. oregonana*	moderate-to-severe defoliation in Soth-man, Burrows, Kemp and Cabot twps (see map, page 49)
1977	*E. decolor*	low numbers in southern part of District
	P. oregonana	pockets of light-to-moderate damage in Burrows, Kemp and Cabot twps
1978		not reported
1979	*E. decolor*	low populations widespread in District
1980		not reported

TIMMINS AND GOGAMA DISTRICTS



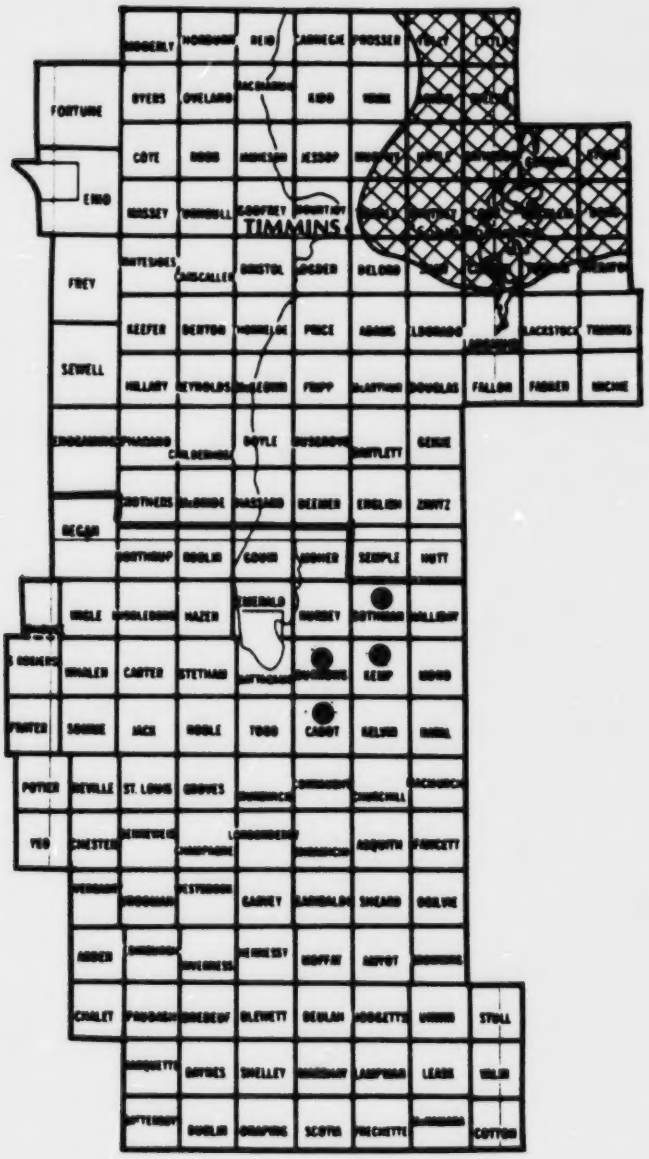
ASPEN TWOLEAF TIER
(Enargia decolor)
Areas within which defoliation occurred in 1970

LEGEND

Moderate-to-severe defoliation

0 KM 40
SCALE

TIMMINS AND GOGAMA DISTRICTS



ASPEN LEAFROLLER
(Pseudexentera oregonana)

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation

Birch Leafminer, *Fenusa pusilla* (Lep.)

Host(s): wB [Major]

Year	Remarks
1950-1966	not reported
1967	There was light defoliation in Macmurchy and Middleboro twps and light infestation in Noble, Invergarry and Kelvin twps.
1968	common in low numbers
1969-1970	not reported
1971	low numbers
1972	light populations common on small open-grown or fringe white birch
1973	low numbers
1974	medium-to-heavy infestation throughout eight townships in the northwestern part of the District; smaller pockets of heavy defoliation in Dublin, Ogilvie, Asquith, Macmurchy and Chester twps
1975	severe mining of regeneration in Asquith, Kelvin and Benneweis twps
1976	damage generally light, with severe defoliation confined to small trees along roads or in clear-cut areas
1977	Populations declined to very low numbers; the only noteworthy damage was observed in Garvey and Jack twps, and was confined to small fringe trees.
1978	light damage throughout the District
1979	Populations increased to moderate levels.
1980	severe defoliation in Halliday and Garvey twps

Forest Tent Caterpillar, *Malacosoma disstria* Hbn.

Host(s): tA, wB [Major]

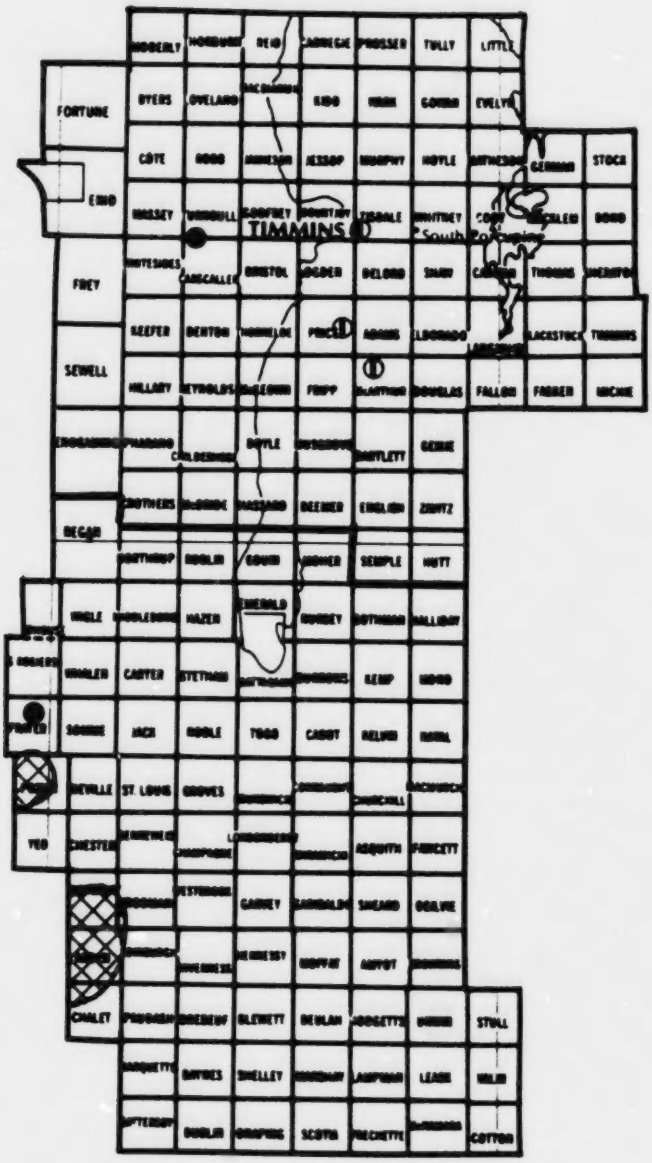
Year	Remarks
1950	The light infestation centered in Eric Twp, Chapleau District, increased and spread into Potier Twp, Gogama District.
1951	Populations increased to a high level, recurred in Potier Twp and spread into Frater Twp. New moderate-to-heavy infestations occurred in Arden, Chalet and Invergarry twps (see map, page 53).
1952	A southeastern spread of the infestation centered in Keith Twp resulted in moderate-to-severe defoliation of aspen stands in Gardhouse and Regan twps. A modest extension of heavy populations occurred in Invergarry and Edinburgh twps. No appreciable change was observed in the Frater or Potier areas (see map, page 54).
1953	The Chapleau and Sudbury infestations increased and merged into one large infestation spreading well into the western and southern parts of Gogama District. Similarly, enlargements of infestations in Cochrane and Kirkland Lake districts resulted in extensions of infestation into the northern and eastern corners of the District. In addition, two large and several small, separate, light infestations were present in the District (see map, page 55).
1954	Although major population reductions were reported in neighboring districts, high populations persisted in Gogama District, with four large areas of heavy infestation occurring along the Cochrane, Kirkland Lake, Chapleau and Sudbury district borders (see map, page 56).
1955	The moderate-to-heavy populations present in 1954 decreased in 1955, leaving only pockets of light defoliation in the eastern part of the District (see map, page 57).
1956	Infestations persisted in the eastern part of the District but declined to light intensity (see map, page 58).
1957	Populations declined to endemic levels.
1958-1962	not reported

(cont'd)

Forest Tent Caterpillar, *Malacosoma disstria* Hbn. (concl.)

Year	Remarks
1963	occasional larvae and cocoons
1964	approximately 60 ha of light infestation in Beulah Twp
1965-1980	not reported

TIMMINS AND GOGAMA DISTRICTS



FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1951

LEGEND

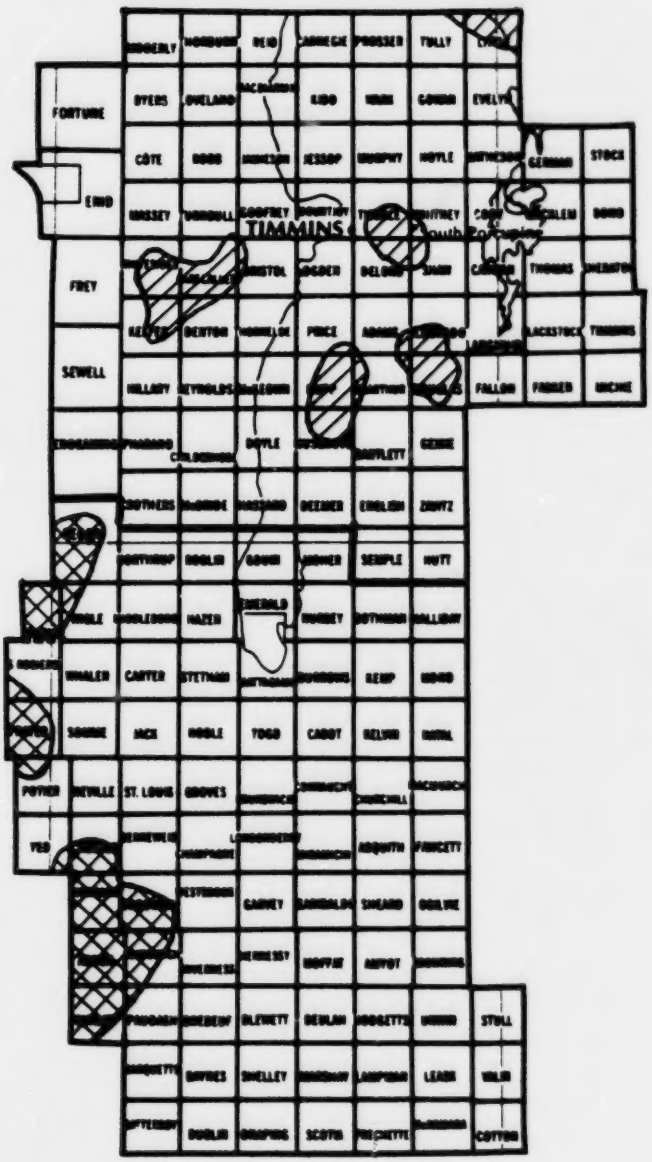
Light defoliation ①

Moderate-to-severe defoliation ● or ▨

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1952

LEGEND

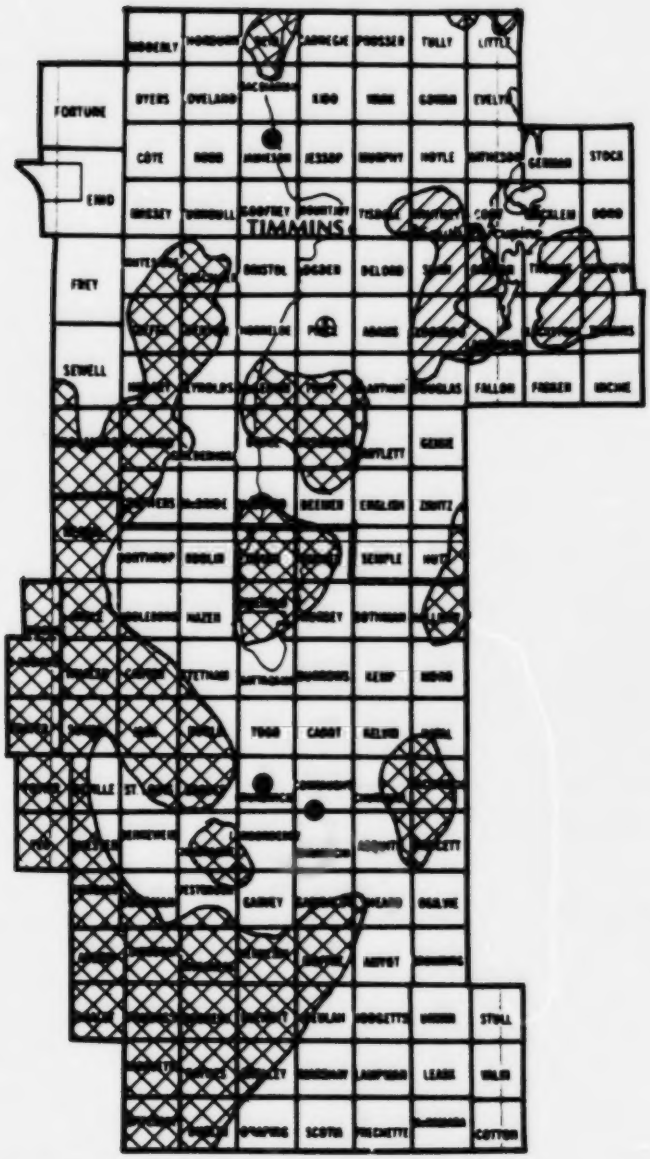
Light defoliation

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1953

LEGEND

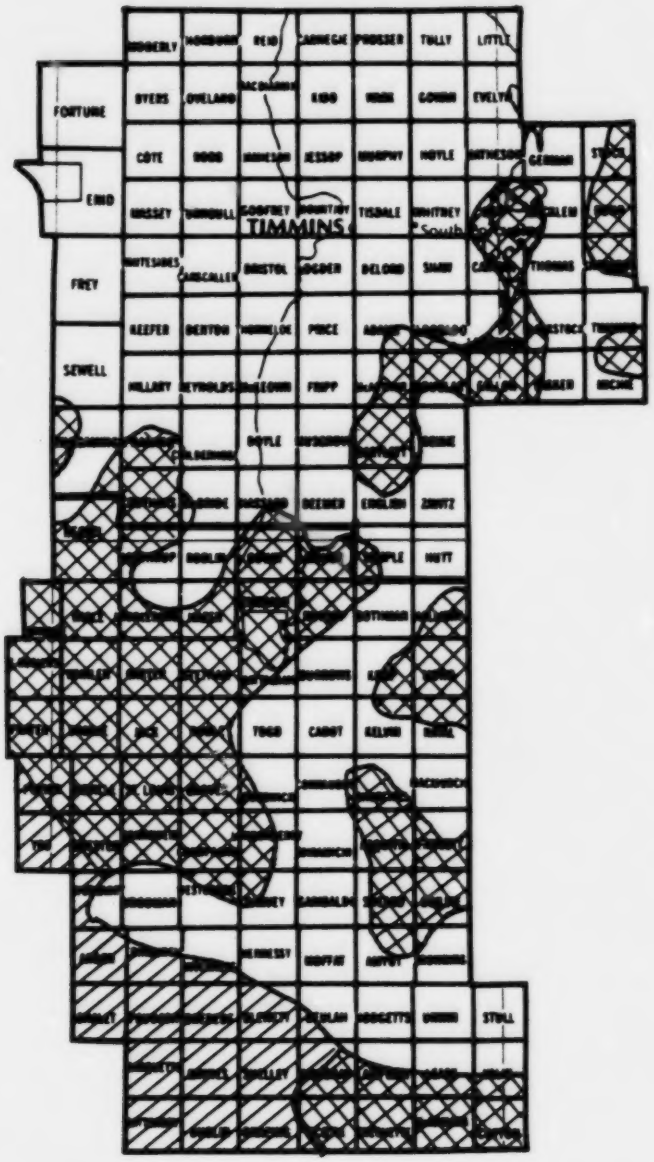
Light defoliation ◐ or

Moderate-to-severe defoliation ● or

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



FOREST TENT CATERPILLAR

Areas within which defoliation occurred in 1954

LEGEND

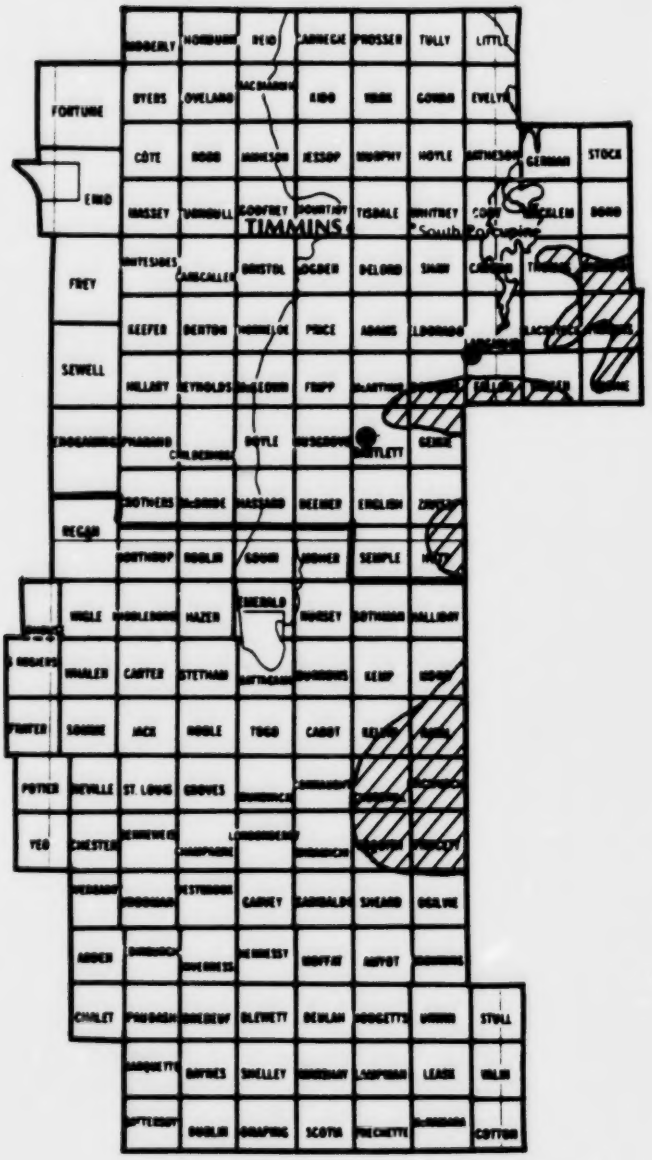
Light defoliation

Moderate-to-severe defoliation

0 KM 40

SCALE

TIMMINS AND GOGAMA DISTRICTS



FOREST TENT CATERPILLAR

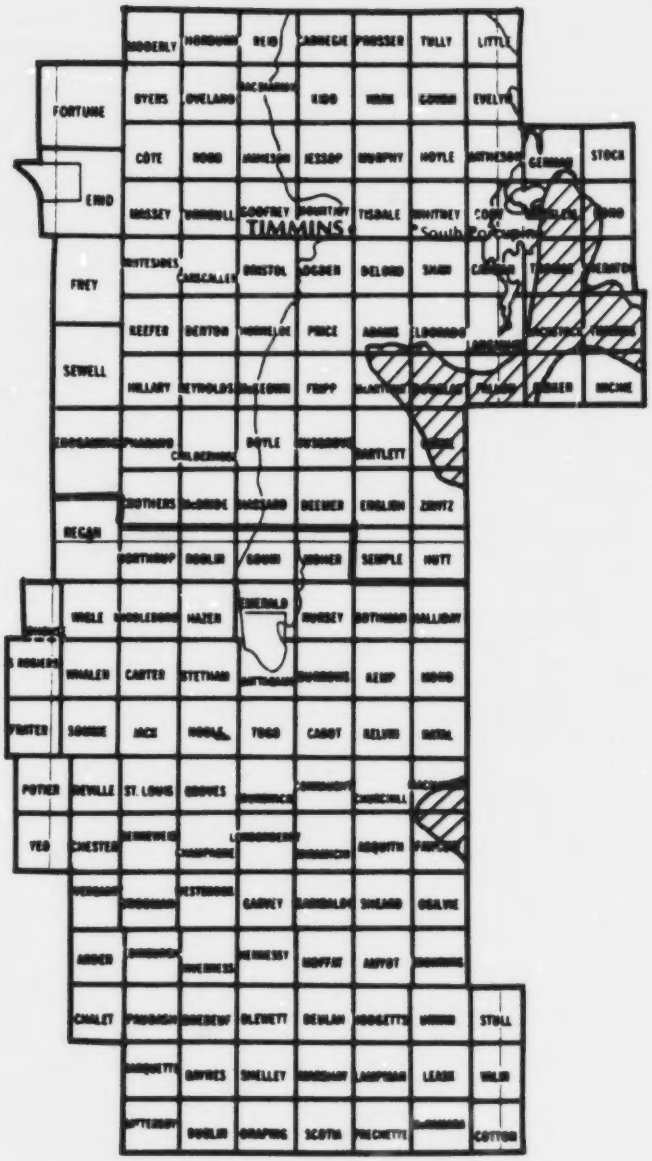
Areas within which defoliation occurred in 1955

LEGEND

Light defoliation

Moderate-to-severe defoliation

TIMMINS AND GOGAMA DISTRICTS



Balsam Fir Sawfly, *Neodiprion abietis* complex

Host(s): bF, spruce [Major]

Year	Remarks
1950-1951	not reported
1952	small numbers in Jack, Groves, Benneweis and Miramichi twps
1953	not reported
1954	endemic levels
1955	not reported
1956	endemic levels
1957-1958	not reported
1959	trace levels recorded
1960	low populations in Benneweis Twp
1961	low levels in Jack, Benneweis and St. Louis twps
1962	trace populations recorded
1963	trace-to-low levels common
1964	low levels common
1965	light infestations in Jack Twp; low numbers common elsewhere
1966	trace-to-low numbers common
1967	pockets of light defoliation in Jack Twp; single colonies in Benneweis, Noble and St. Louis twps
1968	scattered colonies in Jack and Noble twps
1969-1980	not reported

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex

Host(s): rP, jP [Major]

Year		Remarks
1950	*N. swainei*	moderate populations at Minisinakwa Lake in Groves, St. Louis, and Jack twps; high populations at Bagsverd Lake in Chester Twp; small numbers in Potier, Yeo, Roblin and Neville twps
	N. virginianus	light populations at Duckbreast Lake, Groves Twp and at Rhonda Headquarters, Macmurchy Twp
1951	*N. swainei*	modest population increase in Groves, St. Louis and Jack twps; continued high populations in Chester Twp, with defoliation ranging as high as 80%; light tree mortality present
	N. virginianus	Light populations persisted at Duckbreast Lake and Rhonda headquarters; a new, small, light infestation was present in Togo Twp.
1952	*N. swainei*	Moderate populations continued in Groves and Jack twps but declined to light levels in St. Louis Twp. Medium-to-heavy infestation persisted in Chester Twp.
	N. virginianus	The light infestations in Groves, Macmurchy and Togo twps declined to low levels.
1953	*N. swainei*	Moderate populations continued in all townships bordering Minisinakwa Lake. Similarly, no change was noted in the high levels at Bagsverd Lake in Chester Twp.
	N. virginianus	Colonies occurred commonly at many locations but were more numerous in areas where *N. swainei* infestations occurred.
	N. pratti banksianae	small numbers of colonies collected

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1954	*N. swainei*	Moderate populations continued in the Minisinakwa Lake area; colonies were more widespread than previously. Light tree mortality was present in older areas of infestation. The high populations at Bagsverd Lake in Chester Twp declined to light levels.
	N. virginianus	Light infestation was present on small trees in Miramichi and Groves twps. Low numbers were observed at many other locations.
	N. nanulus nanulus	small numbers collected in four townships
	N. pratti banksianae	collected more frequently than in previous years
1955	*N. swainei*	The light infestation in the Minisinakwa Lake area showed little change except in Jack Twp, where light populations were found. There were low numbers of colonies elsewhere.
	N. virginianus	small pockets of light infestation in the central part of the District
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1956	*N. swainei*	no change in status
	N. virginianus	general increase observed, especially in the Minisinakwa and Mesomikenda lakes area
	N. nanulus nanulus	not reported
	N. pratti banksianae	common on open-grown jack pine in the south-central part of the District

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1957	*N. swainei*	areas of light infestation at Beaver Lake Park, east of Lands and Forests air base, and on an island in Minisinakwa Lake; defoliation approximately 40% and light mortality of reproduction jack pine; low numbers of colonies at many locations in the south-central part of the District
	N. virginianus	light-to-medium infestation on one island in the south arm of Minisinakwa Lake; low numbers common in many areas
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1958	*N. swainei*	no appreciable change in the status of the insect except near Lands and Forests air base where levels were light
	N. virginianus	There was a new pocket of light infestation at Blair Lake, Nursey Twp; medium infestations at Minisinakwa Lake continued.
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1959	*N. swainei*	Populations increased on the island in Minisinakwa Lake, with defoliation of 50% recorded. Light infestation was noted at Beaver Lake Park, Chester Twp and Beaver Lake Dam, Somme Twp, which suffered moderate damage in 1958.
	N. virginianus	Moderate populations persisted in the Blair and Minisinakwa lakes area and a new, similar infestation was found at Grassy Landing in Kelvin Twp.
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1960	*N. swainei*	Populations in all areas declined to light levels.
	N. virginianus	Populations declined to light levels in all areas except Halliday Twp, where moderate numbers occurred.
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1961	*N. swainei*	low populations
	N. virginianus	low populations
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1962	*N. swainei*	modest increase in numbers; defoliation light
	V. virginianus	low populations
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1963	*N. swainei*	one small pocket of light infestation in Jack Twp
	N. virginianus	low populations
	N. nanulus nanulus	small pockets of light defoliation in Hodgetts, Jack and Noble twps
	N. pratti banksiance	not reported
1964	*N. swainei*	not reported
	N. virginianus	not reported
1964	*N. nanulus nanulus*	Light populations persisted in Hodgetts, Jack and Noble twps and there was a new light area in Mattagami Twp.

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1964	*N. pratti banksianae*	not reported
1965	*N. swainei*	not reported
	N. virginianus	light populations on small jack pine trees in Benneweis, Chester, Groves, Jack and Silk twps
	N. nanulus nanulus	Populations declined to very low numbers.
	N. pratti banksianae	not reported
1966	*N. swainei*	light populations in Noble Twp
	N. virginianus	light populations at numerous locations on small-diameter jack pine trees
	N. nanulus nanulus	low populations
	N. pratti banksianae	not reported
1967	*N. swainei*	light populations in Noble Twp
	N. virginianus	high populations observed in Groves Twp; light numbers at many other locations in the central part of the District
	N. nanulus nanulus	- Light infestations occurred in Noble, Jack, Middleboro and Mattagami twps.
	N. pratti banksianae	- small pockets of light infestation in Strachan, Jack and Noble twps
1968	*N. swainei*	- There was a light infestation in Chester Twp. Populations declined to low numbers in Noble Twp.
	N. virginianus	High populations persisted in Groves Twp. New pockets of infestation were found near Marne Lake in Burrows Twp, with light populations at many other locations.

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (cont'd)

Year		Remarks
1968	*N. nanulus nanulus*	not reported
	N. pratti banksianae	not reported
1969	*N. swainei*	not reported
	N. virginianus	Population increases were recorded at many locations. At Marne Lake quantitative assessments showed 7.5 colonies per tree in comparison with 2.9 in 1968. Light defoliation occurred on fringe and open-grown trees in Kemp, Groves and Chester twps.
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1970	*N. swainei*	not reported
	N. virginianus	The medium infestation in Burrows Twp collapsed.
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1971-1974	*N. swainei*	not reported
	N. virginianus	not reported
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1975	*N. swainei*	low populations common
	N. virginianus	low populations common
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported

(cont'd)

Pine Sawflies: Red Pine Sawfly, *Neodiprion nanulus nanulus* Schedl., Jack Pine Sawfly, *N. pratti banksianae* Roh., Swaine Jack Pine Sawfly, *N. swainei* Midd. and Redheaded Jack Pine Sawfly, *N. virginianus* complex (concl.)

Year		Remarks
1976	*N. swainei*	not reported
	N. virginianus	low populations common
	N. nanulus nanulus	light damage at many points
	N. pratti banksianae	not reported
1977	*N. swainei*	not reported
	N. virginianus	light populations common in jack pine plantations and on natural regeneration
	N. nanulus nanulus	low populations
	N. pratti banksianae	not reported
1978	*N. swainei*	not reported
	N. virginianus	light populations in Garvey Twp; endemic level elsewhere in the central part of the District
	N. nanulus nanulus	not reported
	N. pratti banksianae	not reported
1979	*N. swainei*	not reported
	N. virginianus	light defoliation at many locations
	N. nanulus nanulus	not reported
	N. pratti banksianae	light populations observed in Asquith Twp
1980	*N. swainei*	not reported
	N. virginianus	moderate-to-severe defoliation on open-grown jack pine trees in Hazen and Noble twps
	N. nanulus nanulus	scattered colonies
	N. pratti banksianae	not reported

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.)

Host(s): aspen [Major]

Year	Remarks
1950	not reported
1951-1953	medium-to-heavy infestation throughout range of host
1954	light infestations common
1955	not reported
1956	light damage near the Mattagami Indian Reservation
1957	low levels reported
1958	not reported
1959	light infestation in St. Louis Twp
1960	widespread low populations
1961	endemic-to-trace levels in District
1962	light infestations in western half of District
1963	infestations of varying degrees common in northern and western portions of District
1964	varying degrees of infestation common in District
1965	not reported
1966	light infestations common on larger trees
1967	low levels throughout District
1968-1971	not reported
1972-1973	light infestations common
1974	light infestations common
1975	medium-to-heavy infestation in Stetham Twp
1976	varying degrees of infestation common in District

(cont'd)

Aspen Leafblotch Miner, *Phyllonorycter ontario* (Free.) (concl.)

Year	Remarks
1977	moderate-to-severe damage in Marquette and Alden twps
1978	light infestations common in District
1979	medium-to-heavy infestations in Marshay, Beulah and Hodgetts twps
1980	severe discoloration in Dublin and Chester twps

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.)

Host(s): spruce [Major]

Year	Remarks
1950	High populations were present in the Mattagami and Minisinakwa lakes area; defoliation of black spruce ranged as high as 50%. Medium-to-heavy infestation continued in Burrows Twp and light tree mortality was present. Scattered patches of black spruce along the Westree-Shiningtree Road were 75% defoliated.
1951	The high populations present in the Mattagami and Minisinakwa lakes area, in Burrows Twp, and along the Westree-Shiningtree Road declined to light levels.
1952	Light infestation continued in the Mattagami and Minisinakwa lakes area. Defoliation was generally light but occasional open trees suffered heavy damage.
1953	Populations declined to endemic levels.
1954	endemic populations widespread
1955	light populations on white spruce reproduction in Noble Twp
1956	Populations increased to moderate levels in Noble Twp.
1957	Populations in Noble Twp declined to light intensity.
1958	There was no change in the status in Noble Twp; a new pocket of heavy damage occurred near Ronda headquarters in Macmurchy Twp.

(cont'd)

Yellowheaded Spruce Sawfly, *Pikonema alaskensis* (Roh.) (concl.)

Year	Remarks
1959	The medium-to-heavy infestation in Macmurchy Twp declined to light intensity. Light damage was noted at scattered locations in Carter and Champagne twps.
1960	Medium-to-heavy infestation persisted on open-grown white and black spruce in Champagne Twp. The infestations in Carter and Macmurchy twps declined to endemic levels.
1961	Populations declined to low levels in all areas except in Noble Twp, where light infestation was noted on scattered hosts.
1962-1966	endemic populations
1967	light infestations in Jack, Stetham and Sewell twps
1968-1977	not reported
1978	light damage at many locations, particularly on ornamentals in urban areas
1979-1980	not reported

White Pine Weevil, *Pissodes strobi* (Peck)

Host(s): all pines, all spruces [Major]

Year	Remarks
1950-1951	not reported
1952	light leader damage to small white pine trees in Mattagami Twp
1953	light infestation in immature white and Scots pine plantings in Mattagami and Noble twps; moderate-to-severe damage present in jack pine plantings at Lands and Forests headquarters in Macmurchy Twp
1954	Quantitative assessments were carried out on reproduction jack pine in Westbrook Twp and on Scots pine plantings in Macmurchy Twp; on white and jack pine trees at numerous other locations leader damage ranged from 6% to 40%.

(cont'd)

White Pine Weevil, *Pissodes strobi* (Peck) (cont'd)

Year	Remarks
1955	Counts were carried out in jack pine plantings in four areas and leader damage ranged from 3% to 17%. The heaviest damage was recorded in Westbrook Twp.
1956	light leader damage to jack pine reproduction at five locations
1957	light infestation at Ostrom Flats, Westbrook Twp
1958-1960	no appreciable change in status
1961-1962	trace weevil damage at widely separated locations
1963	small pocket of light damage in Wigle Twp
1964	Quantitative sampling showed average leader damage of 6% in jack pine plantings, 2% in Scots pine and 5% in black spruce.
1965	Quantitative sampling showed comparable leader damage in all sample locations.
1966	The degree of leader damage declined in most areas.
1967	Medium-to-heavy infestation occurred in Kemp Twp, where 23% leader damage was recorded. Light damage was observed in planted jack pine, white pine, red pine and black spruce in many locations.
1968	Heavy leader damage persisted in Kemp Twp.
1969	Leader damage increased to 32% in Kemp Twp. Light damage was widespread.
1970	30% of leaders damaged on white pine in Kemp Twp
1971	The incidence of infested leaders declined to 13% in Kemp Twp and a small increase to 3% incidence occurred in jack pine in Benneweis Twp.
1972	Populations declined throughout the District, with 12% incidence reported in Kemp Twp.
1973	Damage levels in white pine plantations averaged 12% throughout the District.

(cont'd)

White Pine Weevil, *Pissodes strobi* (Peck) (concl.)

Year	Remarks
1974	2% weeviling reported on 2-m jack pine in Vrooman Twp
1975	low damage levels reported in Benneweis, Noble and Roblin twps
1976	The percentage of damaged leaders remained low throughout the District. In Benneweis Twp 8% were damaged, and there was a trace of damage in Noble Twp.
1977	damage levels unchanged from 1976
1978	endemic levels at all points sampled, with the exception of 4% incidence on jack pine in Benneweis Twp
1979	reported only on jack pine, at less than 5% incidence in all cases
1980	less than 5% incidence reported on jack pine in Invergarry, Jack and Vrooman twps

Larch Sawfly, *Pristiphora erichsonii* (Htg.)

Host(s): tL [Major]

Year	Remarks
1950-1953	not reported
1954-1955	varying degrees of infestation
1956	a few scattered light infestations
1957	endemic levels
1958	varying degrees of infestation common
1959	moderate-to-severe defoliation widespread
1960	light infestations common
1961	a few widely scattered light infestations
1962	low counts in Noble Twp
1963	endemic levels

(cont'd)

Larch Sawfly, *Pristiphora erichsonii* (Htg.) (concl.)

Year	Remarks
1964	a few pockets of light infestation, widely scattered
1965	light defoliation on small trees at widely scattered locations
1966	light infestations common
1967	infestations of varying intensity common
1968	not reported
1969	low and scattered populations recorded
1970-1972	light populations common
1973	moderate-to-severe defoliation in Garibaldi Twp
1974	light infestation in Westree-Shiningtree area
1975	light-to-moderate defoliation in Garvey Twp
1976	low levels common
1977	occasional colonies recorded
1978	scattered colonies only
1979-1980	light defoliation at widely scattered points

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.)

Host(s): mountain-ash [Major]

Year	Remarks
1950-1960	not reported
1961	scattered light infestations common
1962	commonly found at low levels in Hazen and Somme twps
1963	moderate-to-heavy infestation in Mattagami Twp
1964	moderate-to-heavy infestations in Hodgetts, Unwin and Browning twps

(cont'd)

Mountain-ash Sawfly, *Pristiphora geniculata* (Htg.) (concl.)

Host(s): mountain-ash [Major]

Year	Remarks
1965-1966	infestations of varying intensity common at widely scattered locations
1967	moderate-to-severe defoliation on 3-m trees in Noble and Groves twps
1968	low levels in Gouin Twp
1969	not reported
1970	widely scattered medium-to-heavy infestations
1971	not reported
1972	medium-to-heavy infestations common
1973	scattered pockets of medium-to-heavy infestation in Shiningtree area
1974	high numbers in Asquith, Garibaldi, Noble and Roblin twps
1975	not reported
1976	varying degrees of defoliation commonly reported
1977	moderate-to-severe defoliation common in District
1978	not reported
1979-1980	high numbers throughout range of host

Ambermarked Birch Leafminer, *Profenusa thomsoni* (Konow)

Host(s): birch [Major]

Year	Remarks
1950-1955	not reported
1956	moderate-to-severe damage to shoreline trees of Minisinakwa River in Togo Twp
1957	light intensity in Togo Twp

(cont'd)

Ambermarked Birch Leafminer, *Profenusa thomsoni* (Konow) (concl.)

Year	Remarks
1958	light infestations at numerous locations
1959	light infestations in DesRosiers and Wigle twps
1960	light infestation in DesRosiers Twp
1961	low levels common
1962	pockets of varying intensity common
1963	light infestations in Groves, Roblin and Togo twps
1964	light infestations common
1965	small pockets of light defoliation common at widely scattered locations
1966	trace damage in Togo, Invergarry, Macmurchy and Middleboro twps
1967	medium-to-heavy infestations in Noble and Togo twps; elsewhere light infestations common
1968	low numbers in southern portion of the District
1969	not reported
1970	low levels common
1971	not reported
1972	low levels common
1973	not reported
1974	light leaf mining in Ogilvie Twp
1975	not reported
1976	varying numbers reported
1977-1980	not reported

Other Noteworthy Insects

Eastern Blackheaded Budworm, *Acleris variana* (Fern.)

Host(s): spruce, hemlock [Major]

Year	Remarks
1950-1952	not reported
1953	low numbers common
1954	endemic levels
1955-1957	not reported
1958	trace populations recorded
1959	small pockets of light infestation at widely scattered points
1960	widely scattered light populations in the southern half of the District
1961	low numbers common on open-grown and fringe trees in the southern portion of the District
1962	low levels throughout the District
1963	light populations common
1964	not reported
1965	light populations on trees in Mattagami Twp
1966	trace numbers throughout the District
1967-1968	low numbers common
1969-1980	not reported

Pine Spittlebug, *Aphrophora cribrata* (Wlk.)

Host(s): conifers [Major]

Year	Remarks
1950-1955	not reported
1956	medium-to-heavy infestation on young trees in Macmurchy Twp
1957	light infestations common in District; some branch mortality in Macmurchy Twp
1958	continued medium-to-heavy infestation in Macmurchy Twp; medium-to-heavy infestation in Noble Twp
1959	Populations declined to light in Macmurchy and Noble twps.
1960	not reported
1961	moderate levels in Mattagami Twp
1962-1963	low populations at numerous widely scattered locations
1964-1966	not reported
1967	low levels common
1968-1969	not reported
1970	low levels commonly reported
1971	endemic levels
1972-1980	not reported

Fruittree Leafroller, *Archips argyrospila* (Wlk.)

Host(s): deciduous [Major]

Year	Remarks
1950-1976	not reported
1977	high numbers widely distributed in the District
1978	not reported
1979	light infestations common at numerous locations
1980	not reported

Birch Sawfly, *Arge pectoralis* (Leach)

Host(s): birch [Major]

Year	Remarks
1950-1951	not reported
1952	scattered colonies in Groves and Brunswick twps
1953	low numbers in Groves, Chester and Benneweis twps
1954	light infestations common south of Gogama; medium-to-heavy infestation in Asquith Twp
1955	medium-to-heavy infestation in Groves Twp
1956	common at low levels in the District
1957	endemic levels
1958	low levels in Togo and Noble twps
1959	not reported
1960	single colony in Noble Twp
1961	not reported
1962	scattered colonies in Cabot Twp
1963-1965	not reported
1966	low populations common
1967	small, light infestation in Kelvin Twp
1968-1980	not reported

Larch Casebearer, *Coleophora laricella* (Hbn.)

Host(s): larch [Major]

Year	Remarks
1950-1963	not reported
1964	several lightly infested trees in St. Louis Twp
1965	avg of 2.7 larvae per 46-cm branch tip on pole-size tamarack in St. Louis Twp
1966	not reported
1967	Populations increased, with light infestations occurring in St. Louis, Garvey, Noble and Groves twps.
1968	Populations declined to endemic levels.
1969-1980	not reported

Yellownecked Caterpillar, *Datana ministra* (Dru.)

Host(s): deciduous [Minor]

Year	Remarks
1950-1954	not reported
1955	trace levels in Macmurchy Twp
1956	trace levels at widely scattered locations
1957	not reported
1958	trace incidence
1959-1961	not reported
1962	small, light infestation in Noble Twp
1963-1980	not reported

Fringed Birch Sawfly, *Dimorphopteryx melanognathus* Roh.

Host(s): wB, yB [Major]

Year	Remarks
1950-1955	not reported
1956	15% defoliation recorded in a pure white birch stand on an island in Kechini Lake, Wigle Twp
1957	Light infestation persisted in Wigle Twp.
1958	Populations declined to endemic levels in Wigle Twp.
1959-1978	not reported
1979	light populations in Hodgetts Twp
1980	not reported

Spruce Coneworm, *Dioryctria reniculelloides* Mut. & Mun.

Host(s): wS, bF [Minor]

Year	Remarks
1950-1959	not reported
1960-1961	trace incidence
1962-1966	not reported
1967	low numbers in Hazen and Jack twps
1968	trace levels noted in the District
1969	not reported
1970	low levels reported
1971-1976	not reported
1977	high numbers in Marquette Twp
1978	not reported
1979	high levels common
1980	not reported

Birch-Aspen Leafroller, *Epinotia solandriana* L.

Host(s): tA, bPo, wB, Ha [Major]

Year	Remarks
1950-1956	not reported
1957	trace incidence
1958	few larvae at scattered locations
1959	low levels common in District
1960	few larvae observed
1961	not reported
1962-1963	common in varying numbers throughout the District
1964	high numbers at numerous widely scattered locations
1965	not reported
1966	light infestation in Noble Twp
1967-1980	not reported

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr.

Host(s): pine [Major]

Year	Remarks
1950-1955	not reported
1956	heavy damage to leaders in Westbrook and Garvey twps
1957	heavy damage in Ostrom Flats
1958	endemic levels in Ostrom Flats
1959-1961	not reported
1962	light damage in Westbrook, Vrooman and Garvey twps
1963	extensive damage in Garvey, Vrooman and Westbrook twps

(cont'd)

Eastern Pine Shoot Borer, *Eucosma gloriola* Heinr. (concl.)

Year	Remarks
1964	heavy damage in Ostrom Flats
1965	light infestations in Garvey, Vrooman and Westbrook twps
1966	light infestations in Garvey, Vrooman and Westbrook twps
1967	low levels common in the District
1968-1973	not reported
1974	light infestation in Vrooman Twp
1975	not reported
1976	high numbers in Benneweis Twp
1977	high populations in Roblin, Noble and Benneweis twps
1978	high numbers common
1979	varying degrees of leader mortality reported
1980	not reported

Eurpoean Spruce Sawfly, *Gilpinia hercyniae* (Htg.)

Host(s): spruce [Minor]

Year	Remarks
1950-1958	not reported
1959-1962	trace levels in Jack, Noble and Stetham twps
1963	endemic levels
1964-1967	low numbers common in the District
1968-1980	not reported

American Aspen Beetle, *Gonioctena americana* (Schaef.)

Host(s): poplar [Major]

Year	Remarks
1950-1952	not reported
1953	high populations throughout range of host
1954	low levels in a few scattered locations
1955	medium-to-heavy infestation in Benneweis Twp
1956	light defoliation common
1957	moderate-to-severe defoliation along K.V.P. road in Benneweis Twp
1958	medium-to-heavy infestation in Benneweis and Champagne twps
1959	low levels common
1960	not reported
1961	light defoliation on roadside regeneration in Noble Twp
1962	low numbers common
1963	numerous pockets of varying intensity throughout the District
1964	low populations throughout range of host
1965	light infestations common south and east of Gogama
1966	light roadside defoliation common
1967	light defoliation in Noble Twp
1968	low populations in Gouin Twp
1969-1971	not reported
1972	low numbers common
1973-1976	not reported

(cont'd)

American Aspen Beetle, *Gonioctena americana* (Schaef.) (concl.)

Year	Remarks
1977	small pocket of defoliation in Cabot, Togo and Noble twps
1978	not reported
1979	medium-to-heavy infestation in Noble Twp
1980	heavy damage in Noble and Kemp twps

Spotted Tussock Moth, *Halysidota maculata* (Harr.)

Host(s): conifers [Minor]

Year	Remarks
1950-1955	not reported
1956	common in District
1957-1958	endemic levels
1959-1960	not reported
1961	endemic levels
1962-1963	not reported
1964	low numbers in Noble Twp
1965-1980	not reported

Fall Webworm, *Hyphantria cunea* (Dru.)

Host(s): deciduous [Major]

Year	Remarks
1950	high populations common in the District
1951	high populations along Westree-Shiningtree highway
1952-1953	not reported
1954	endemic levels
1955	low numbers in Noble Twp
1956	common at low levels in Togo, Noble and Mattagami twps
1957	varied levels throughout the District
1958	medium-to-heavy infestation in a 1-ha stand in Jack Twp
1959	not reported
1960	trace incidence in Jack Twp
1961-1963	low levels throughout District
1964	low numbers at a few locations
1965	trace-to-low levels in Jack and Noble twps
1966	low levels throughout the District
1967-1980	not reported

Pine Engraver, *Ips pini* (Say)

Host(s): pine and spruce [Major]

Year	Remarks
1950-1954	not reported
1955	high numbers in skidways in Jack, St. Louis and Macmurchy twps

(cont'd)

Pine Engraver, *Ips pini* (Say) (concl.)

Year	Remarks
1956-1960	not reported
1961	low levels in Asquith and Hazen twps
1962	high numbers in Noble Twp
1963	low levels in Jack Twp
1964-1980	not reported

Northern Tent Caterpillar, *Malacosoma californicum pluviale* Dyar

Host(s): Al, Ch, W [Major]

Year	Remarks
1950-1951	moderate levels along Westree-Shiningtree highway
1952-1953	not reported
1954	numerous colonies in Noble, Togo and Mattagami twps
1955	common in Noble and Togo twps
1956-1957	low levels in Noble, Westbrook, Roblin and Togo twps
1958	decreased counts in Togo and Westbrook twps
1959-1961	low levels common
1962	high numbers in Roblin Twp
1963	high numbers at several locations
1964	light infestations common
1965-1966	low numbers common along roadsides and in clearings
1967	light defoliation in Noble Twp
1968-1972	not reported

(cont'd)

Northern Tent Caterpillar, *Malacosoma californicum pluviale* Dyar (concl.)

Year	Remarks
1973	light populations in Burrows Twp
1974	not reported
1975	low levels common along roadsides and in cutovers
1976-1980	common at low levels

Sawyer Beetles, *Monochamus* spp.

Host(s): all conifers [Major]

Year	Remarks
1950-1952	not reported
1953	damage noted in jack pine logs salvaged from road-building operations in Benneweis Twp
1954-1958	not reported
1959	low incidence noted
1960	adults commonly observed
1961	adults commonly observed
1962	commonly seen in cut and burnt-over areas
1963-1977	not reported
1978	heavy damage from adult feeding on mature jack pine adjacent to storage dumps and logging slash in Ogilvie and Invergarry twps
1979	In areas of recent or current cutting operations, feeding damage was recorded on current foliage.
1980	High numbers of adult beetles were observed feeding on fringe trees and in plantations in Vrooman and Invergarry twps.

Spiny Elm Caterpillar, *Nymphalis antiopa* (L.)

Host(s): deciduous [Minor]

Year	Remarks
1950-1953	not reported
1954	common at low levels at widely scattered locations
1955-1959	not reported
1960	low levels around Gogama
1961	low numbers at several widely scattered locations
1962-1970	not reported
1971	small numbers at numerous locations
1972-1980	not reported

Northern Pitch Twig Moth, *Petrova albicapitana* (Busck)

Host(s): jP [Minor]

Year	Remarks
1950-1956	not reported
1957	moderate-to-severe damage levels at Mattagami Indian Reservation and at Ronda
1958	Populations declined to light levels at Ronda and at Mattagami Indian Reservation.
1959	low numbers on all trees examined in the District
1960	low numbers of nodules collected at scattered locations
1961	low numbers commonly collected
1962	commonly found on young trees
1963	low numbers in Benneweis and Jack twps
1964-1973	not reported

(cont'd)

Northern Pitch Twig Moth, *Petrova albicapitana* (Busck) (concl.)

Year	Remarks
1974	varying populations throughout the District
1975	not reported
1976	light damage common
1977-1980	not reported

Balsam Shootboring Sawfly, *Pleroneura brunneicornis* Roh.

Host(s): bF [Minor]

Year	Remarks
1950-1957	not reported
1958	common at trace levels
1959	low levels common in the southern portion of the District
1960-1961	not reported
1962	low numbers in Jack Twp
1963	low numbers common
1964	not reported
1965	light damage at many locations
1966	low damage levels in Noble Twp
1967	light roadside infestations in Jack, Noble and Groves twps
1968-1980	not reported

Spruce Bud Midge, *Rhabdophaga swainei* Felt

Host(s): spruce [Minor]

Year	Remarks
1950-1958	not reported
1959	galls common on regeneration in Noble Twp
1960	endemic levels
1961-1962	observed in small numbers at widely scattered locations
1963	low levels common throughout range of host
1964	endemic-to-trace populations common
1965	trace levels in Jack Twp
1966	not reported
1967	low levels common in the District
1968-1973	not reported
1974	low populations common throughout range of host
1975-1980	not reported

DISEASES

Armillaria Root Rot, *Armillaria mellea* (Vahl : Fr.) Kummer

Host(s): coniferous, deciduous [Major]

Year	Remarks
1950-1961	not reported
1962	This root rot fungus caused low levels of tree mortality at several locations.
1963-1964	8% mortality recorded in Vrooman Twp
1965	not reported
1966	low infection rates at scattered locations
1967	disease commonly found in planted areas
1968-1970	not reported
1971	5% mortality recorded in Noble Twp
1972-1980	not reported

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard

Host(s): pine [Major]

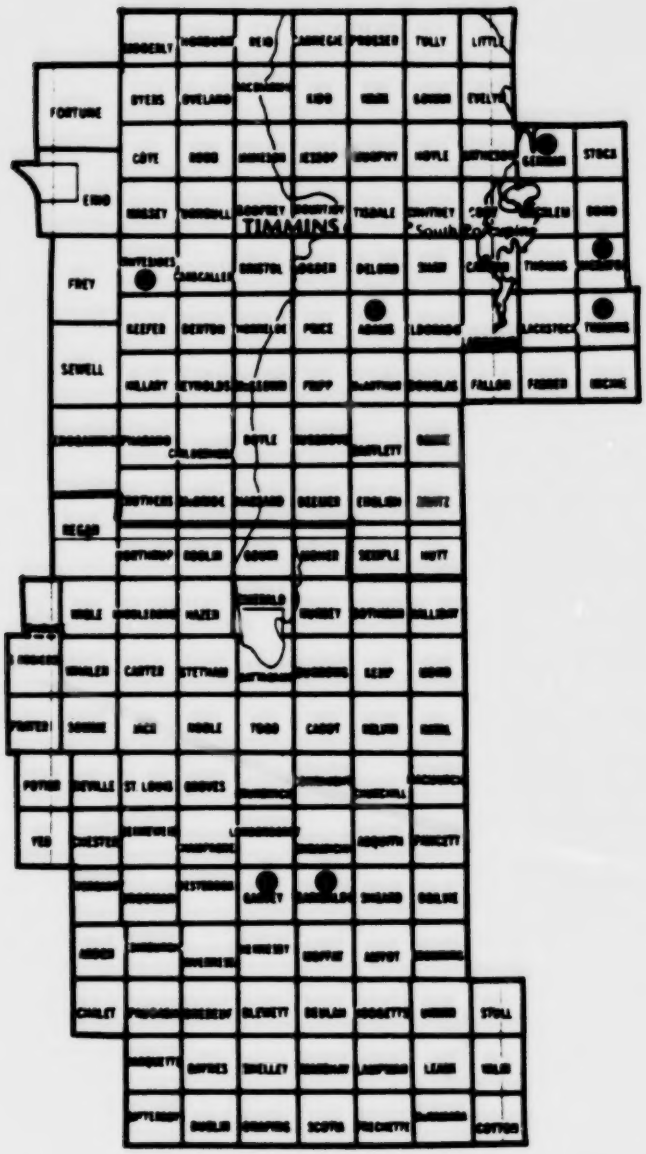
Year	Remarks
1950-1965	not reported
1966	severe foliar damage in Garibaldi and Garvey twps (see map, page 95)
1965	light infestations common south and east of Gogama
1967	a new infection center recorded in Jack Twp
1968-1969	not reported
1970	76% lower branch infection in Vrooman Twp
1971	not reported
1972	trace incidence in Benneweis Twp

(cont'd)

Scleroderris Canker, *Ascocalyx abietina* (Lagerb.) Schläpfer-Bernhard (concl.)

Year	Remarks
1973	high infection rate in Cabot Twp
1974-1977	not reported
1978	A new infection center was recorded in Invergarry Twp.
1979	little change noted in the District
1980	moderate incidence in Cabot Twp

TIMMINS AND GOGAMA DISTRICTS



SCLERODERRIS CANKER

Locations where infections occurred in 1966

LEGEND

Moderate-to-severe infection ●

0 KM 40

SCALE

Spruce Needle Rust, *Chrysomyxa ledi* (Alb. & Schwein.) de Bary

Host(s): spruce [Major]

Year	Remarks
1950-1958	not reported
1959	infections at varying degrees of intensity common in the District
1960	commonly found throughout the District
1961-1962	trace foliar damage levels common in the District
1963	foliar damage commonly observed at widely scattered points
1964	Damage levels reached 59% in Noble Twp and 52% in Carter Twp.
1965-1969	not reported
1970	moderate infection levels in a single 1-ha stand of black spruce in Westbrook Twp
1971	trace damage levels common
1972	Infection levels averaged 65% in four townships.
1973	high incidence of infection throughout the District
1974-1975	not reported
1976	Foliar damage levels averaged 2% in Roblin, Dublin, and Asquith twps.
1977	Foliar damage in Harvey and Regan twps averaged 8%.
1978	not reported
1979	negligible damage levels throughout the District
1980	low levels of infection at widely scattered points

Ink Spot of Aspen, *Ciborinia whetzelii* (Seaver) Seaver

Host(s): tA [Major]

Year	Remarks
1950-1958	not reported
1959	Leaf browning by this pathogen accounted for small pockets of varying degrees of infection throughout the District.
1960	Small pockets of severe foliar damage were commonly recorded.
1961	not reported
1962-1963	Severe foliar damage was noted at scattered locations.
1964-1965	moderate-to-severe foliar damage noted in eight townships
1966-1967	light foliar damage commonly recorded
1968	not reported
1969	trace foliar damage at widespread locations
1970	not reported
1971	low damage levels in Garibaldi, Garvey, and Kemp twps
1972-1973	common at low levels in the District
1974	moderate damage levels common in the District
1975	moderate and light damage levels in Macmurchy and Noble twps, respectively
1976	an average of 29% damage noted in four townships
1977	an average of 17% damage in Churchill, Macmurchy, Garvey and Noble twps
1978	an average of 18% damage recorded in three townships
1979	leaf browning prevalent in the District
1980	trace damage levels commonly recorded

Sweet Fern Blister Rust, *Cronartium comptoniae* Arthur

Host(s): jP [Major]

Year	Remarks
1950-1963	not reported
1964	light damage to red pine and jack pine seedlings in the Gogama nursery
1965	not reported
1966	occasional stem cankers found at two locations in the District
1967	low infection rate in Noble and Invergarry twps
1968-1969	not reported
1970	moderate infection rates in Carter and Unwin twps
1971	low incidence in Benneweis Twp
1972	not reported
1973	Incidence rates varied to a high of 10% in the District.
1974	not reported
1975	an average of 8% of trees infected in Arden, Garvey and Stetham twps
1976-1980	not reported

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer

Host(s): wP [Major]

Year	Remarks
1950-1961	not reported
1962	varying degrees of damage to branches and stems throughout range of host

(cont'd)

White Pine Blister Rust, *Cronartium ribicola* J.C. Fischer (concl.)

Year	Remarks
1963-1965	low infection levels recorded on branches
1966-1969	not reported
1970	disease commonly found in the District
1971-1972	not reported
1973	incidence rate of 7.5% in Cabot Twp
1974-1980	not reported

Tar Spot Needle Cast, *Davisomycella ampla* (J. Davis) Darker

Host(s): jP [Minor]

Year	Remarks
1950-1958	not reported
1959	severe defoliation at numerous points
1960	commonly found in the District
1961-1962	not reported
1963	severe foliar damage to individual trees and light damage common at widely scattered points
1964-1966	light damage recorded at widely scattered points
1967-1975	not reported
1976	only trace damage levels recorded
1977	trace incidence recorded across the southern portion of the District
1978-1980	not reported

Hypoxylon Canker, *Hypoxylon mammatum* (Wahlenb.) J. Miller

Host(s): tA, lA [Major]

Year	Remarks
1950-1952	not reported
1953	trace incidence in Noble and Garvey twps
1954	Moderate infection rates occurred in 16 scattered townships.
1955-1959	not reported
1960	disease commonly observed in the District
1961-1963	not reported
1964-1966	Infection rates averaged 46% in Jack and Noble twps.
1967	high incidence and low mortality in Noble Twp
1968-1972	not reported
1973	low incidence of stem cankers in Dublin, Arden and Carter twps
1974-1979	not reported
1980	commonly observed causing mortality throughout the District

Shoot Blight, *Venturia macularis* (Fr.) Müller & v. Arx

Host(s): tA, lA [Major]

Year	Remarks
1950-1959	not reported
1960	low incidence of infection across the District
1961	not reported
1962	severe damage to new shoots at widely scattered locations
1963	high incidence rates recorded in three townships

(cont'd)

Shoot Blight, *Venturia macularis* (Fr.) Müller & v. Arx (concl.)

Year	Remarks
1964	severe defoliation in Mattagami, Kemp, Gouin and Hazen twps
1965-1966	not reported
1967-1968	light incidence at widely scattered points
1969	trace incidence on understory aspen in Stetham Twp
1970-1975	not reported
1976	an average of 3% foliar damage in Noble and Dublin twps
1977	Damage levels averaged 5% in Invergarry Twp.
1978	trace damage levels in Jack Twp
1979	trace damage levels in Baynes Twp
1980	not reported

Other Noteworthy Diseases

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hirats.

Host(s): jP [Major]

Year	Remarks
1950-1961	not reported
1962	Severe damage to branches and small-diameter stems caused light mortality in a 1.3-ha stand.
1963	infection rates of 0% to 50% recorded in three townships
1964-1970	not reported
1971	incidence rate of 15% in Benneweis Twp
1972	low incidence in Vrooman Twp
1973-1974	not reported

(cont'd)

Western Gall Rust, *Endocronartium harknessii* (J.P. Moore) Y. Hirats. (concl.)

Year	Remarks
1975	galls recorded on 13% of trees examined in Vrooman Twp
1976-1979	not reported
1980	light damage on 2-0 jack pine seedlings in Gogama nursery

White Trunk Rot, *Phellinus igniarius* (L. : Fr.) Quélet

Host(s): deciduous [Major]

Year	Remarks
1950-1953	not reported
1954	incidence rate of 20% in Sewell Twp
1955-1959	not reported
1960	The disease was commonly found on mature trembling aspen throughout the District.
1961-1964	not reported
1965	low incidence commonly found in the District
1966-1980	not reported

Shoot Blight, *Pollaccia elegans* Servit

Host(s): bPo [Major]

Year	Remarks
1950-1959	not reported
1960	light incidence recorded in the District
1961-1962	not reported
1963	severe incidence at scattered locations
1964-1965	not reported
1966	low damage levels reported
1967	light shoot damage in Ivanhoe and Noble twps
1968	not reported
1969	trace incidence on roadside and understory trees in Gouin Twp
1970-1980	not reported

ABIOTIC DAMAGE

Drought

Year	Remarks
1950-1954	not reported
1955	Severe browning of white birch foliage occurred over large areas of the District.
1956-1980	not reported

Frost

Year	Remarks
1950-1962	not reported
1963	light shoot damage on balsam fir and white spruce throughout the District
1964	light-to-moderate damage common throughout the range of balsam fir and white spruce
1965-1966	not reported
1967	Damage levels reached 70% in Garvey and Somme twps.
1968-1971	not reported
1972	severe damage levels recorded in the northwestern portion of the District
1973-1976	not reported
1977	an average of 10% defoliation on a variety of hosts in Cabot, Noble, and Benneweis twps
1978	Foliar damage averaged 9% in Noble and Benneweis twps.
1979	not reported
1980	moderate-to-severe damage throughout the District

Hail

Year	Remarks
1950-1954	not reported
1955	severe foliar damage in Rhonda and south of Gogama
1956-1963	not reported
1964	severe foliar damage to jack pine and trembling aspen in Stetham, Togo and St. Louis twps
1965-1966	not reported
1967	light-to-moderate damage recorded in the central portion of the District
1968-1980	not reported

Wind

Year	Remarks
1950-1972	not reported
1973	heavy wind damage in Chalet Twp on varied species
1974-1980	not reported

Winter Drying

Year	Remarks
1950-1962	not reported
1963	severe foliar damage and some mortality at widely scattered locations
1964	single pockets of moderate damage noted in the District
1965	not reported

(cont'd)

Winter Drying (concl.)

Year	Remarks
1966	Browning of red pine foliage occurred at scattered points.
1967	severe damage levels in Kemp and Burrows twps
1968-1970	not reported
1971	high damage levels in red and white pine plantations in Calvin and Kemp twps
1972	not reported
1973	severe damage around Marne Lake
1974-1975	not reported
1976	foliar damage recorded at 15% in Kemp Twp
1977	not reported
1978	Damage averaged 15% in Benneweis Twp.
1979	not reported
1980	trace damage levels common

APPENDICES

APPENDIX A

DECIDUOUS HOST

Common Name	Scientific Name	Abbreviations
Alder	*Alnus* spp.	Al
Apple	*Malnus* spp.	Ap
Ash, black	*Fraxinus nigra* Marsh.	As
Aspen, largetooth	*Populus grandidentata* Michx.	lA
trembling	*tremuloides* Michx.	tA
Basswood	*Tilia* spp.	Ba
Beech	*Fagus grandifolia* Ehrh.	Be
Birch, white	*Betula papyrifera* Marsh.	wB
yellow	*alleghaniensis* Britt.	yB
Butternut	*Juglans cinerea* L.	Bu
Cherry, eastern choke	*Prunus virginiana* L.	eaCH
pin	*pensylvanica* L.f.	pCh
Elm, white	*Ulmus americana* L.	wE
Horse-chestnut	*Aesculus hippocastanum* L.	hChe
Ironwood	*Ostrya* spp.	I
Maple, Manitoba	*Acer negundo* L.	mM
red	*rubrum* L.	rM
sugar	*saccharum* Marsh.	sM
Mountain-ash, American	*Sorbus americana* Marsh.	aMo
Oak, bur	*Quercus macrocarpa* Michx.	bO
red	*rubra* L.	rO
Poplar, balsam	*Populus balsamifera* L.	bPo
Carolina	*eugenei* Simon-Louis	cPo
Lombardy	*nigra* L.	lPo
silver	*alba* L.	sPo
Willow	*Salix* spp.	W

APPENDIX B

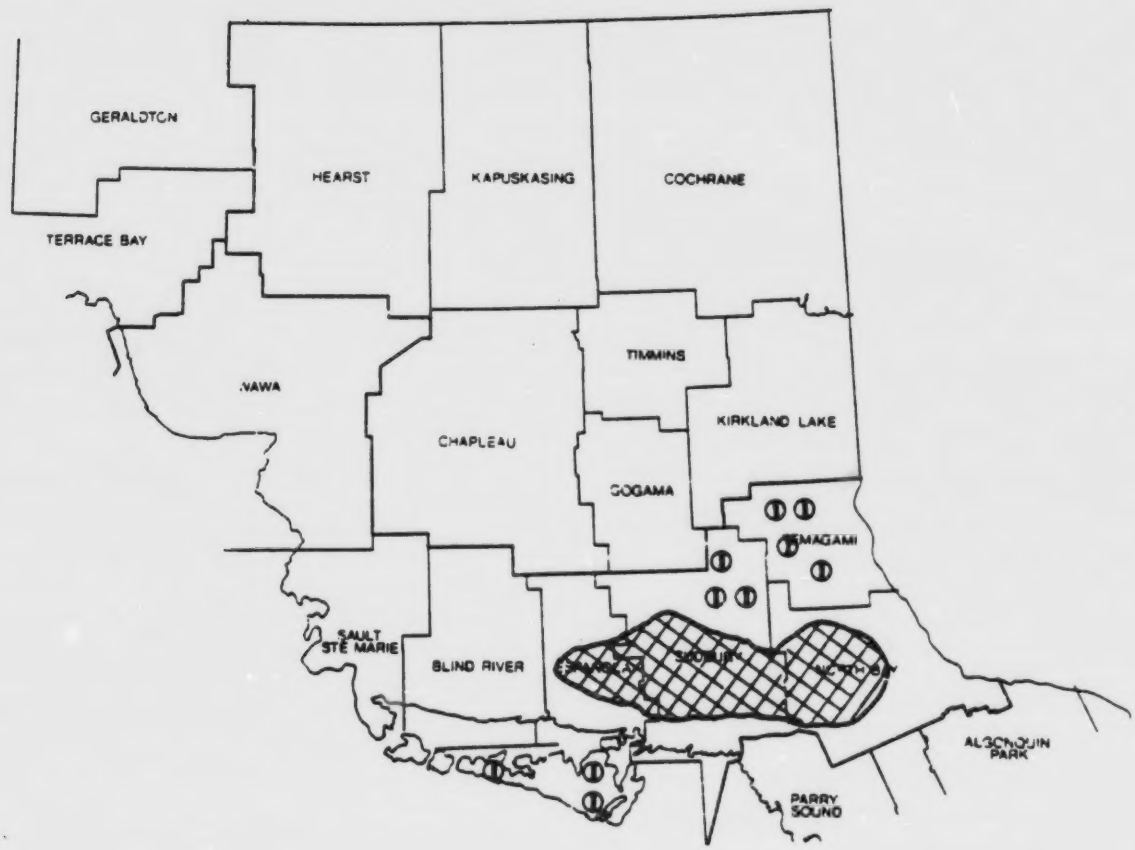
CONIFEROUS HOST

Common Name	Scientific Name	Abbreviations
Cedar, eastern white	*Thuja occidentalis* L.	eC
Fir, balsam	*Abies balsamea* (L.) Mill.	bF
Larch	*Larix laricina* (Du Roi) K. Koch	tL
Pine, Austrian	*Pinus nigra* Arn.	aP
eastern white	*strobus* L.	wP
jack	*banksiana* Lamb.	jP
mugho	*mugho* Turra	mP
red	*resinosa* Ait.	rP
Scots	*sylvestris* L.	scP
Spruce, black	*Picea mariana* (Mill.) B.S.P.	bS
Colorado	*pungens* Engelm.	colS
Norway	*abies* (L.) Karst.	nS
red	*rubens* Sarg.	rS
white	*glauca* (Moench) Voss	wS

APPENDIX C

MAPS - NORTHEASTERN ONTARIO

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

Birch Skeletonizer

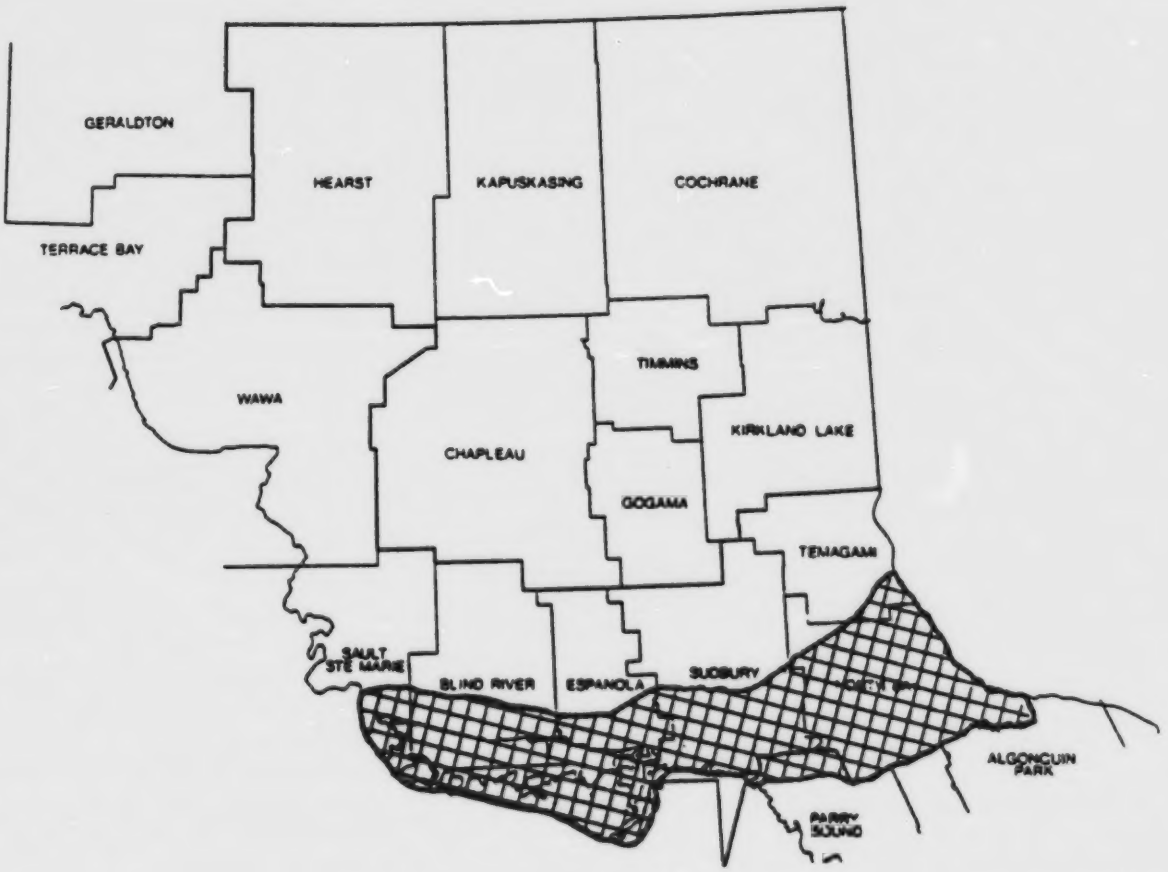
Areas within which defoliation occurred in 1950

LEGEND

Light defoliation ①

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO



Birch Skeletonizer

Areas within which defoliation occurred in 1961

LEGEND

Moderate-to-severe defoliation

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Birch Skeletonizer

Areas within which defoliation occurred in 1963

LEGEND

Light defoliation

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

Birch Skeletonizer

Areas within which defoliation occurred in 1970

0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

Birch Skeletonizer

Areas within which defoliation occurred in 1971

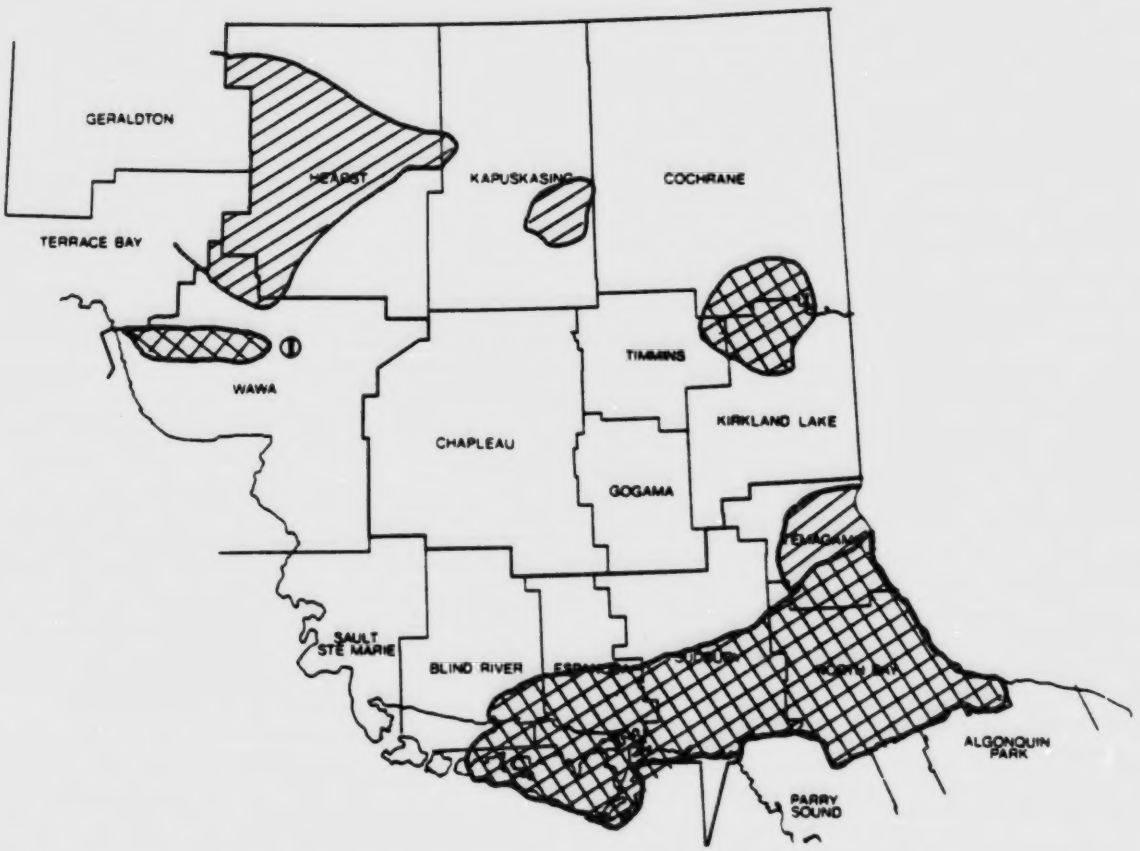
0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO



Birch Skeletonizer

Areas within which defoliation occurred in 1972

LEGEND

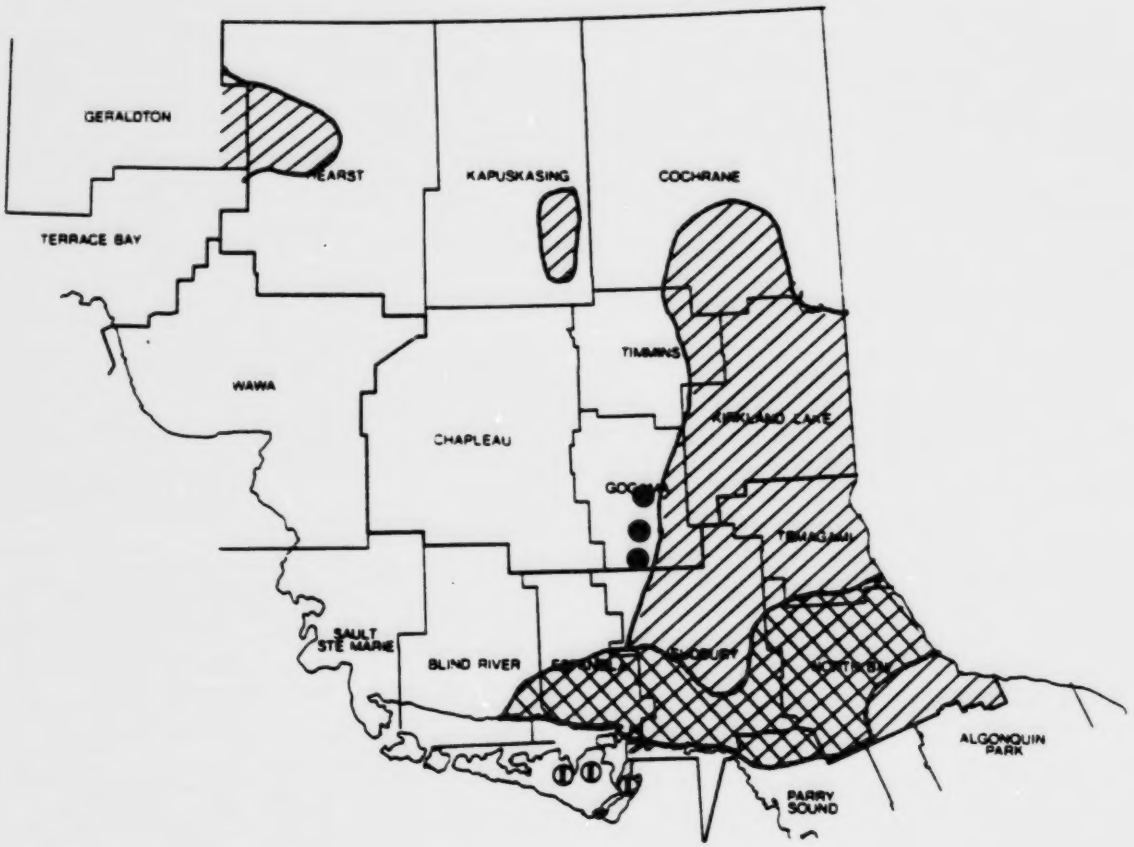
Light defoliation ◐ or

Moderate-to-severe defoliation

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO



Birch Skeletonizer

Areas within which defoliation occurred in 1973

0 Miles 60

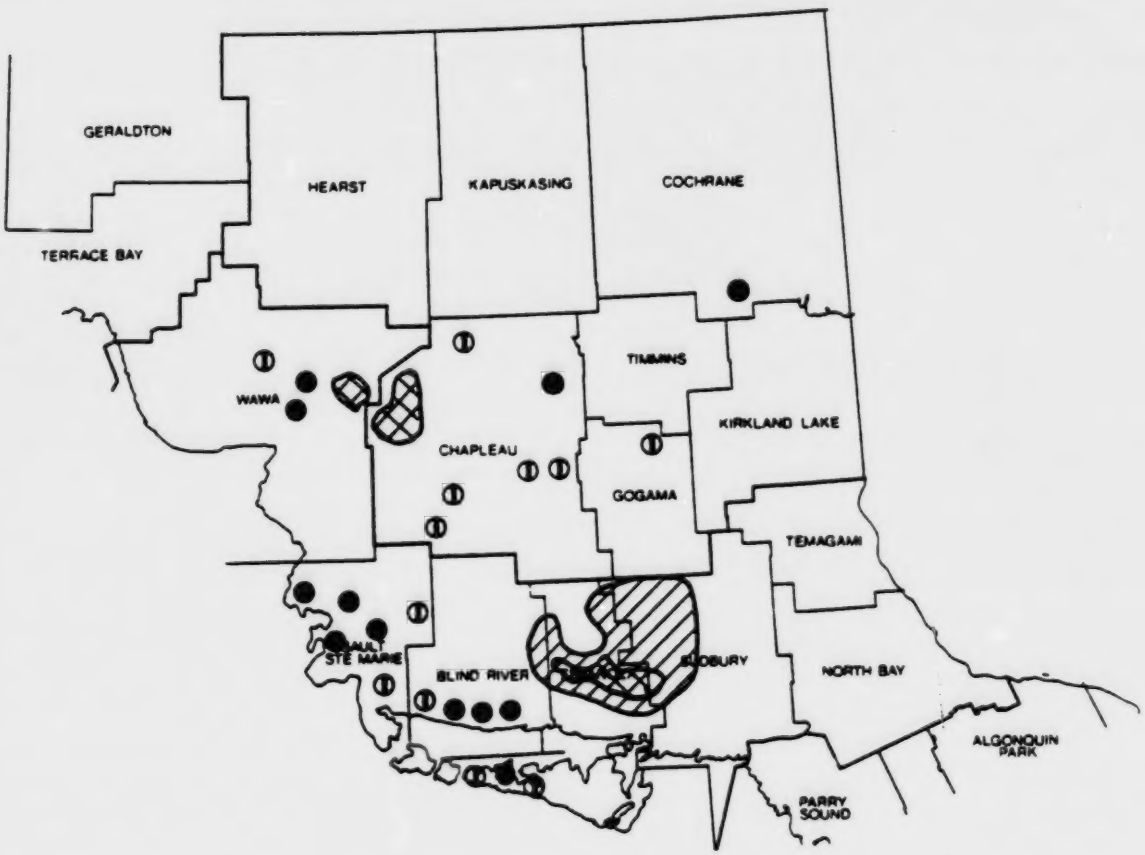
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Large Aspen Tortrix

Areas within which defoliation occurred in 1957

0 Miles 60

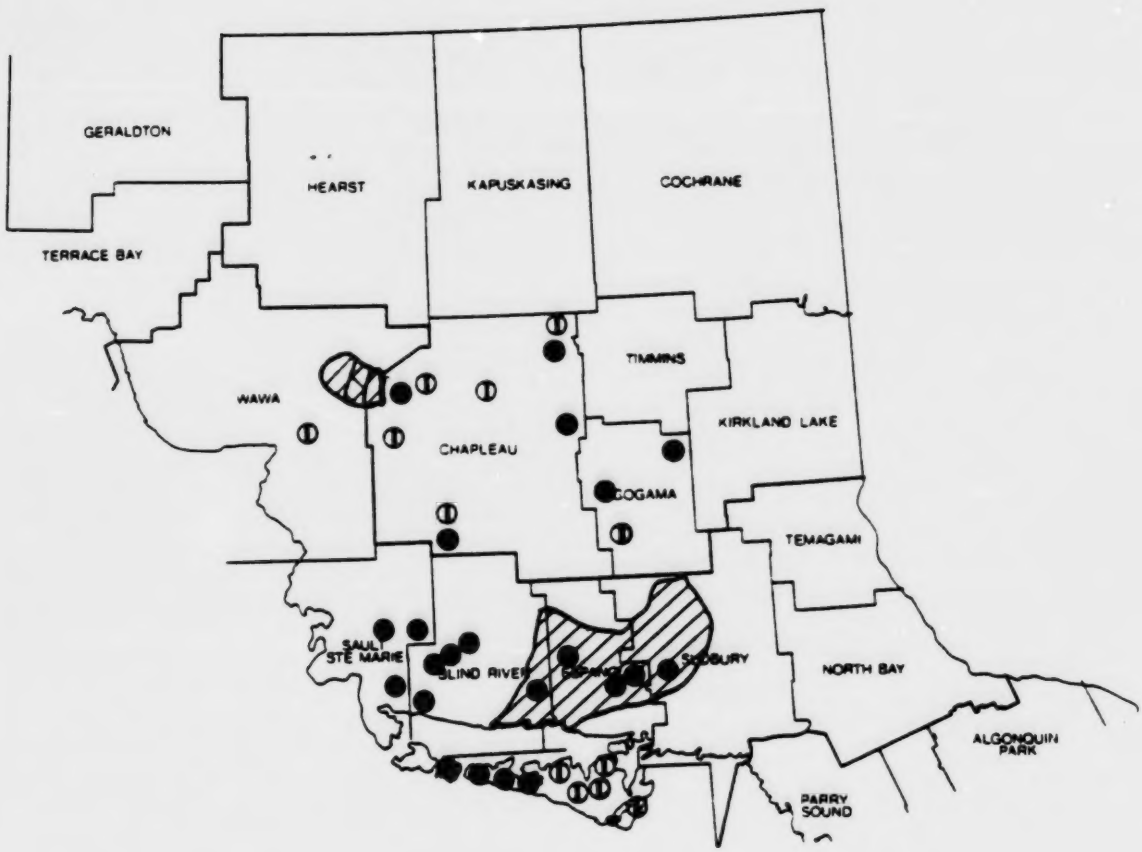
0 Kilometres 96

LEGEND

Light defoliation ◐ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO



Large Aspen Tortrix

Areas within which defoliation occurred in 1958

0 Miles 60

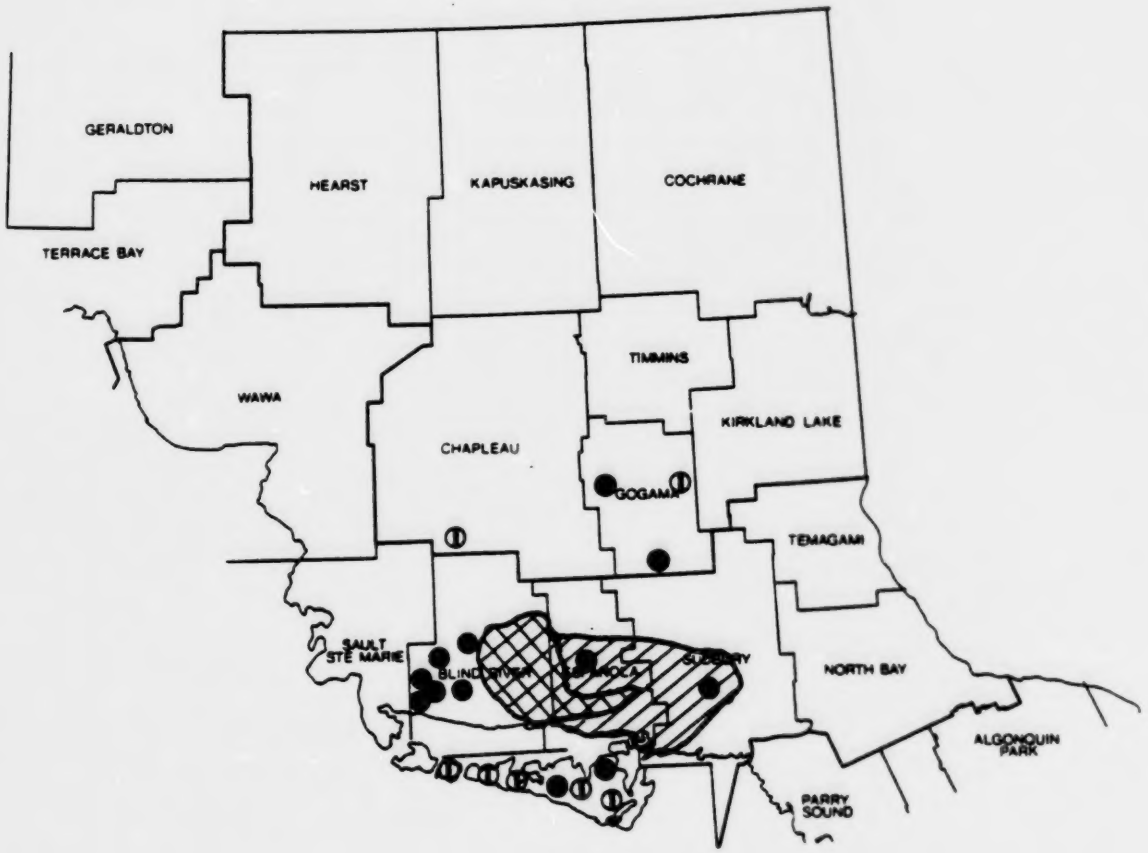
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Large Aspen Tortrix

Areas within which defoliation occurred in 1959

0 Miles 60

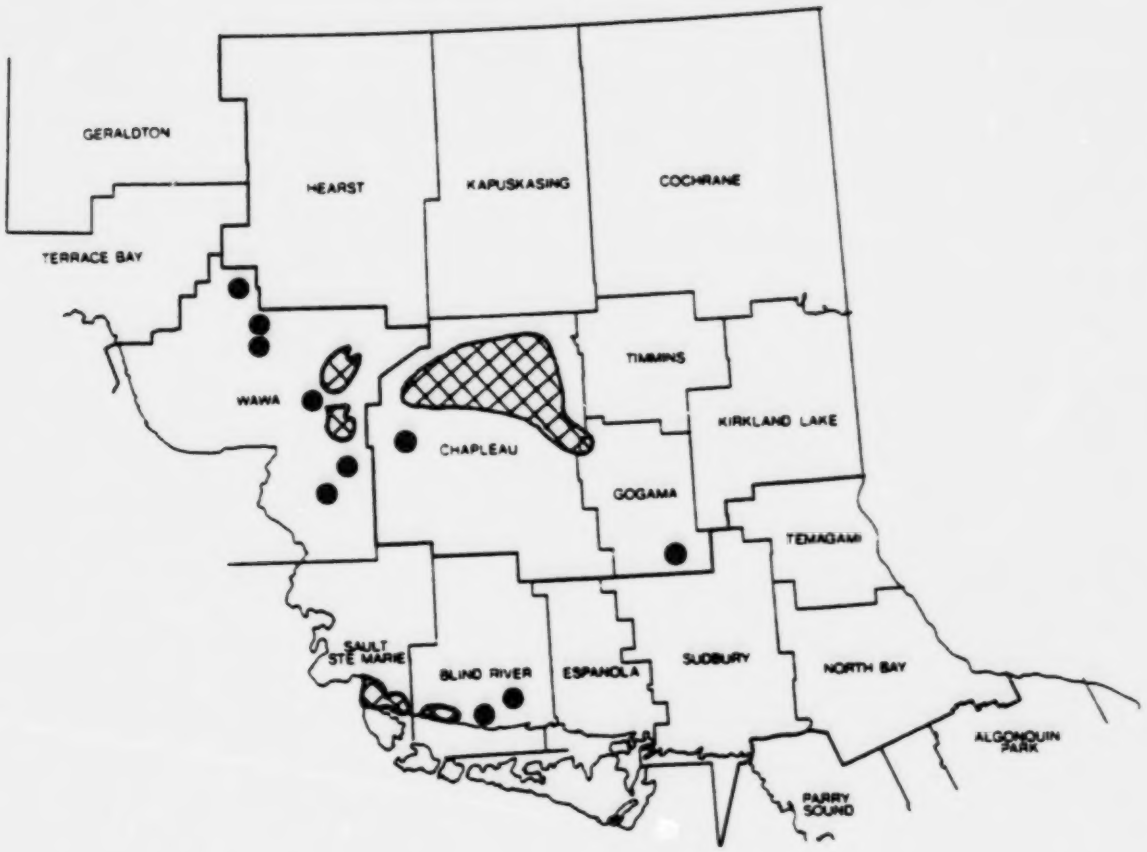
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

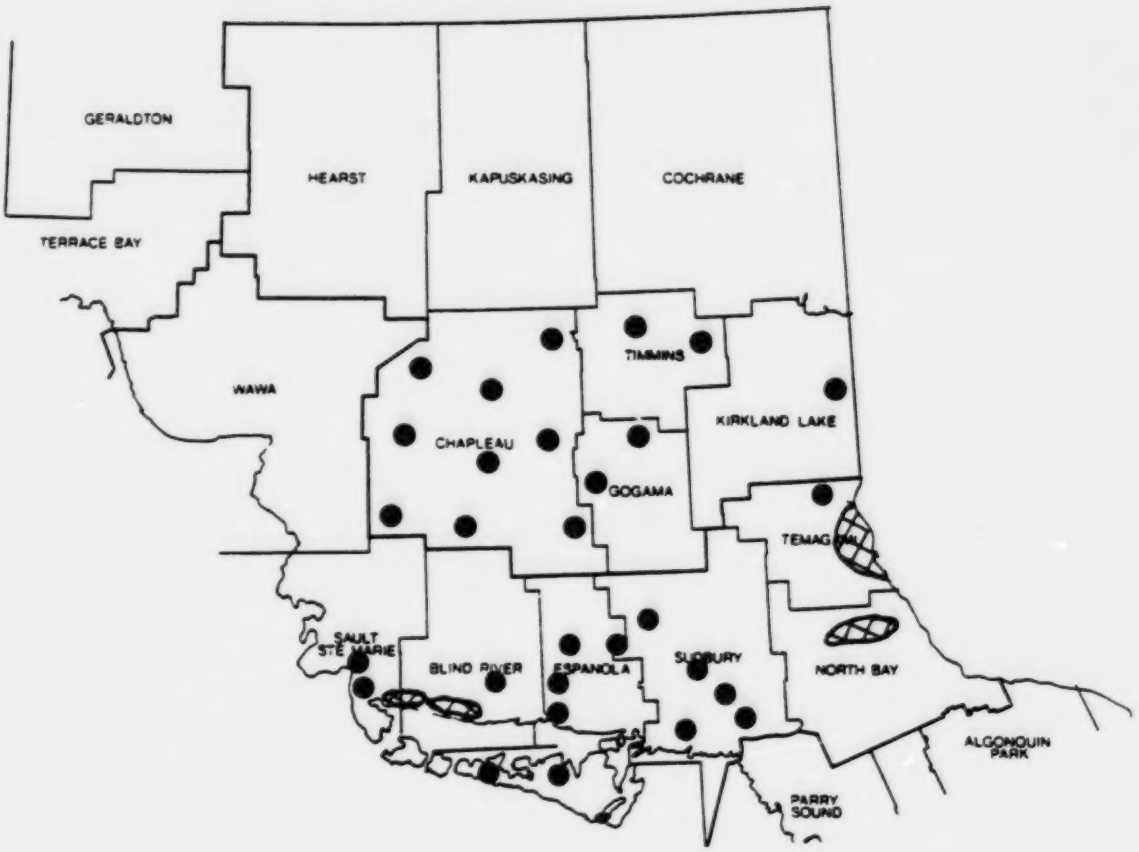
Large Aspen Tortrix

Areas within which defoliation occurred in 1970

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



Large Aspen Tortrix

Areas within which defoliation occurred in 1971

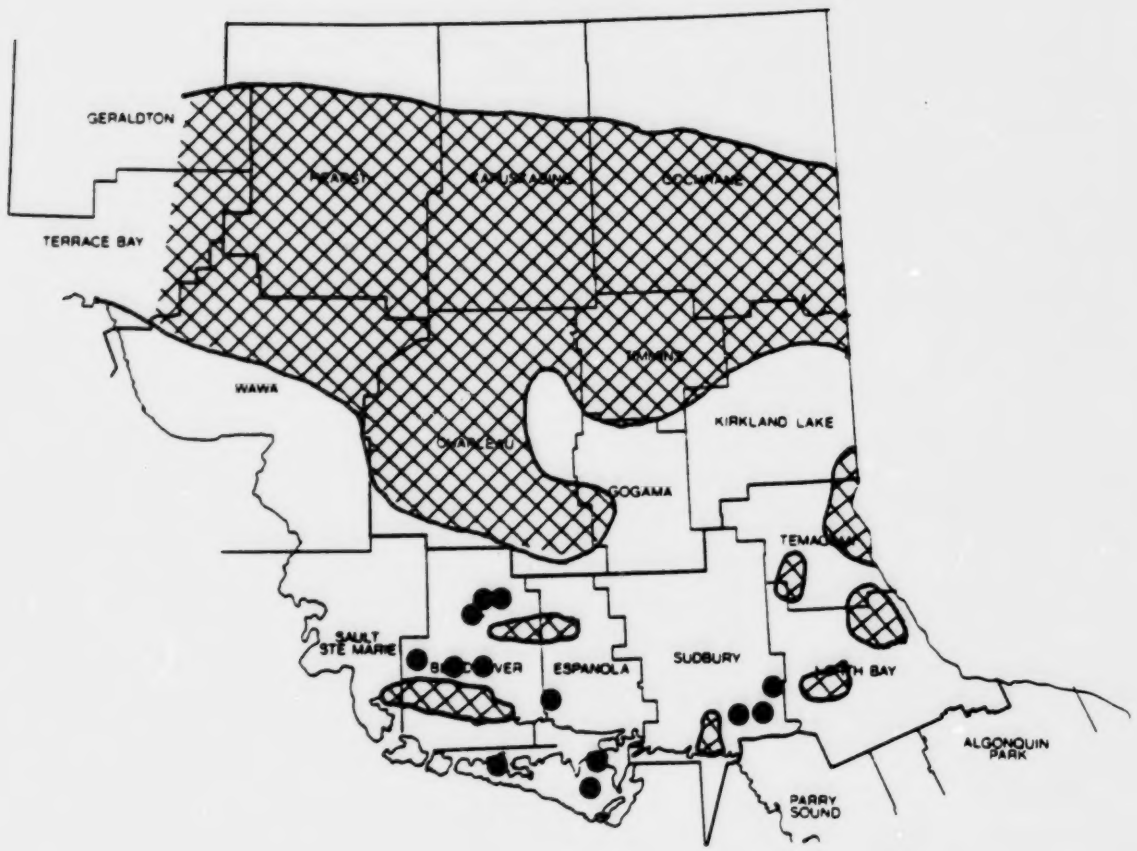
0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

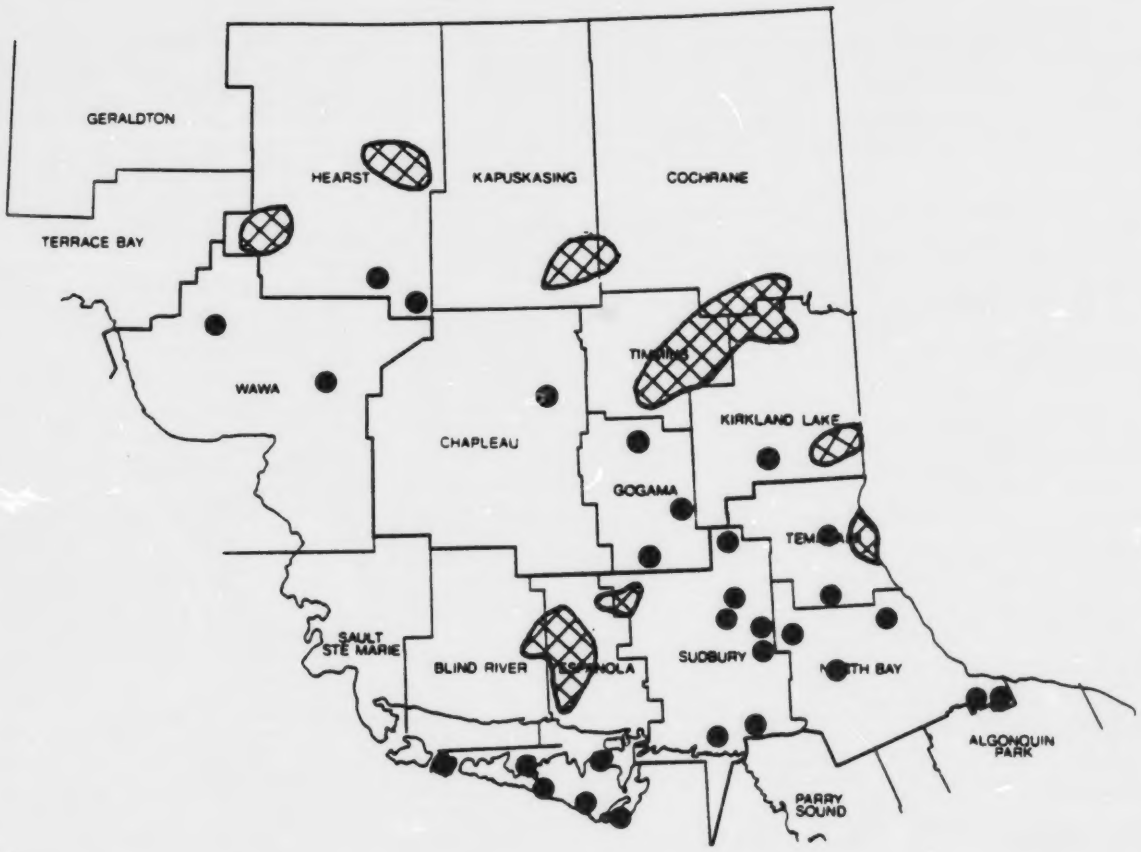
Large Aspen Tortrix

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Large Aspen Tortrix

Areas within which defoliation occurred in 1973

0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Large Aspen Tortrix

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

Large Aspen Tortrix

Areas within which defoliation occurred in 1975

0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

Spruce Budworm

Areas within which defoliation occurred in 1950

0 Miles 60

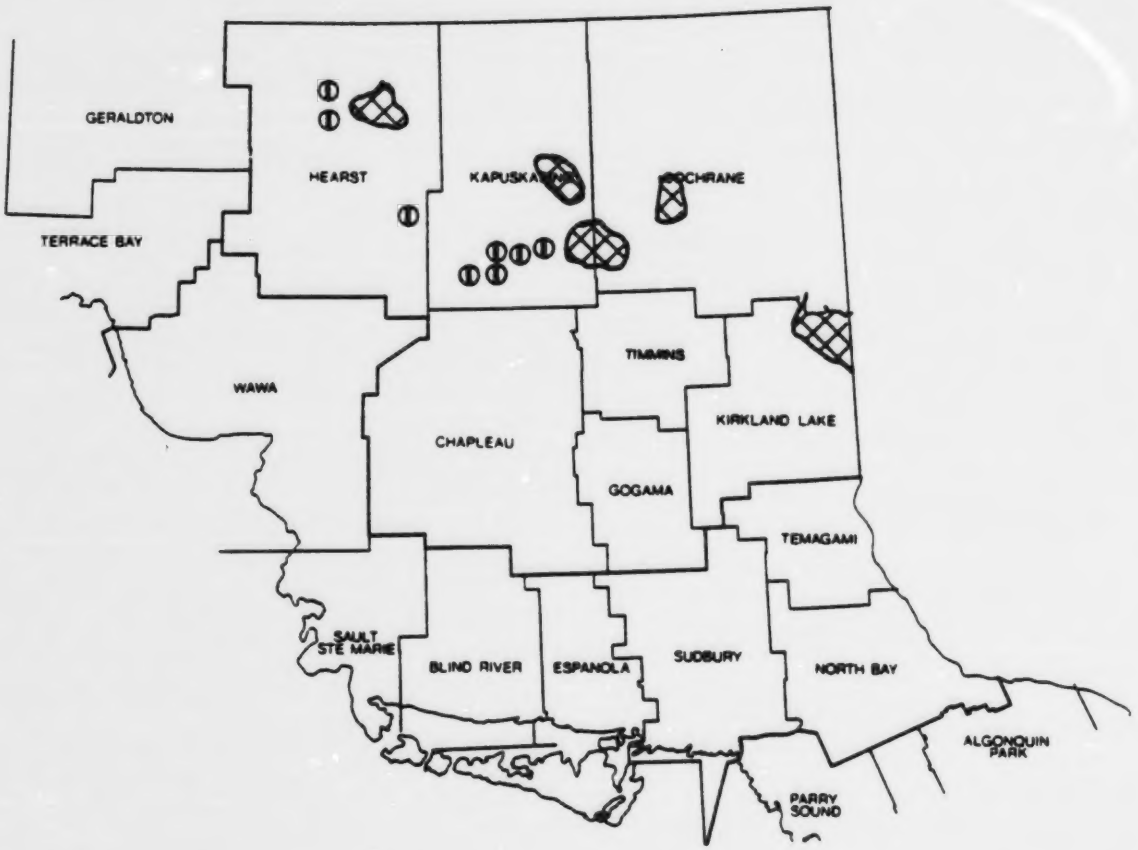
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which defoliation occurred in 1951

0 Miles 60

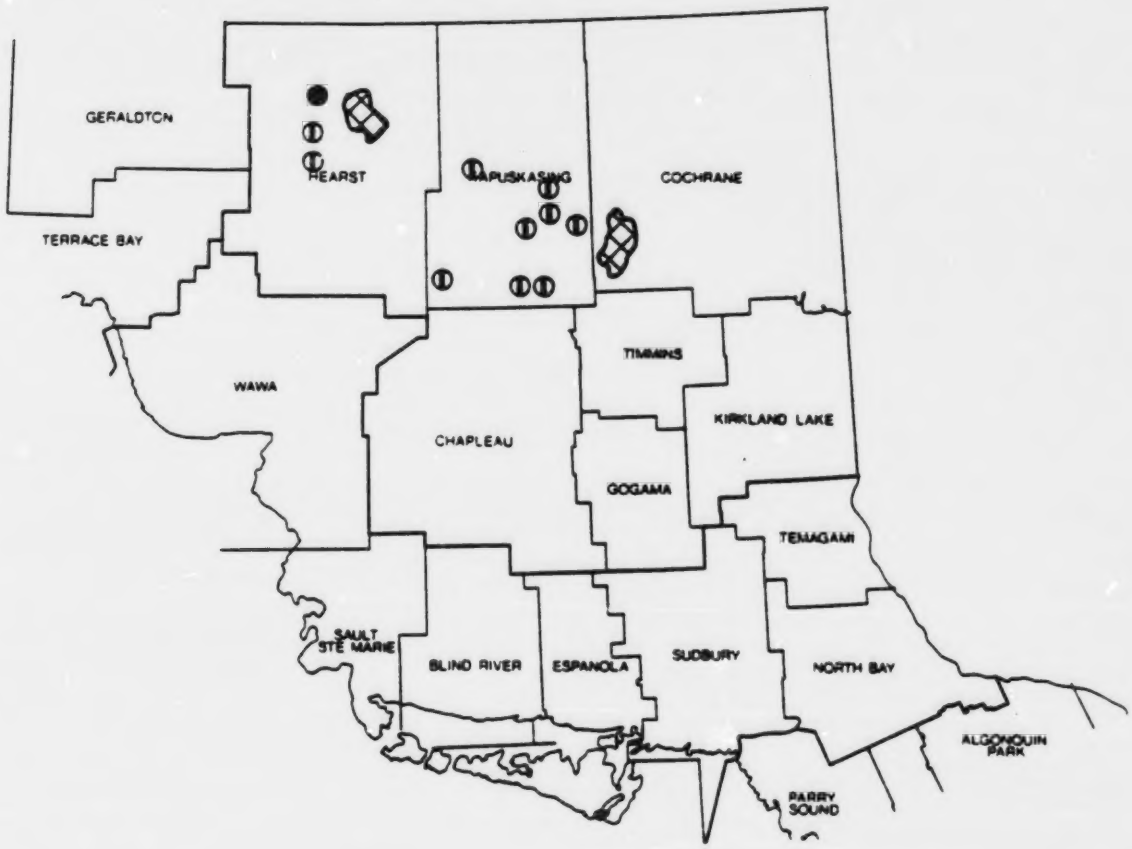
0 Kilometres 96

LEGEND

Light defoliation ①

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

Spruce Budworm

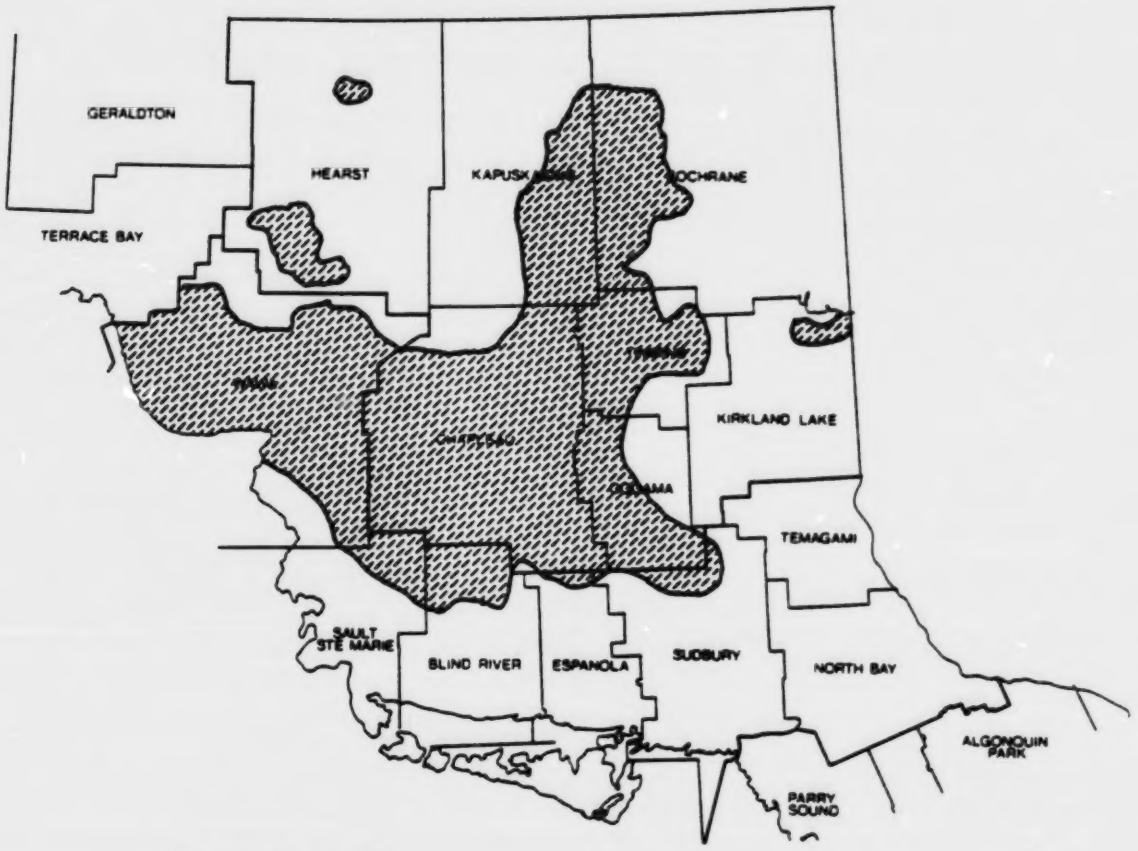
Areas within which defoliation occurred in 1952

LEGEND

Light defoliation ◐

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1950

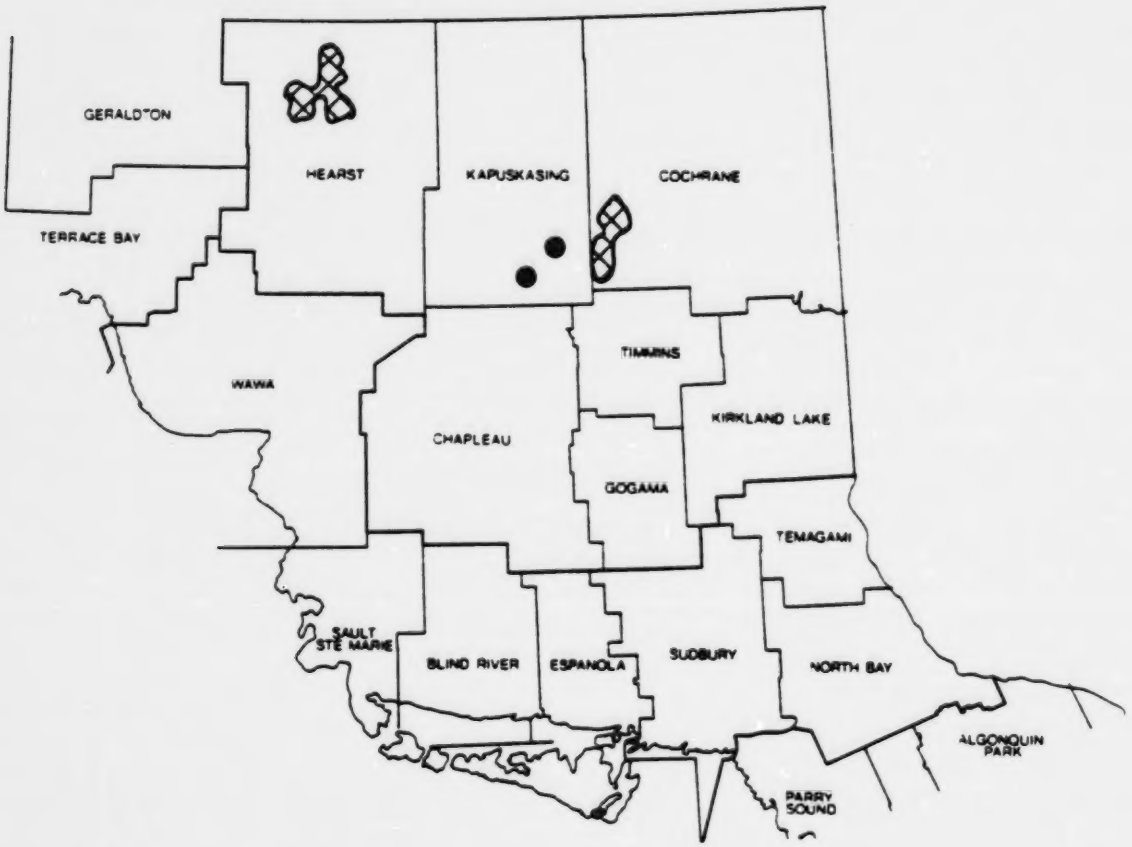
0 Miles 60

0 Kilometres 96

LEGEND

Mortality

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which defoliation occurred in 1953

0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Spruce Budworm

Areas within which defoliation occurred in 1954

LEGEND

Light defoliation ①

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Spruce Budworm

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation ◐ or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

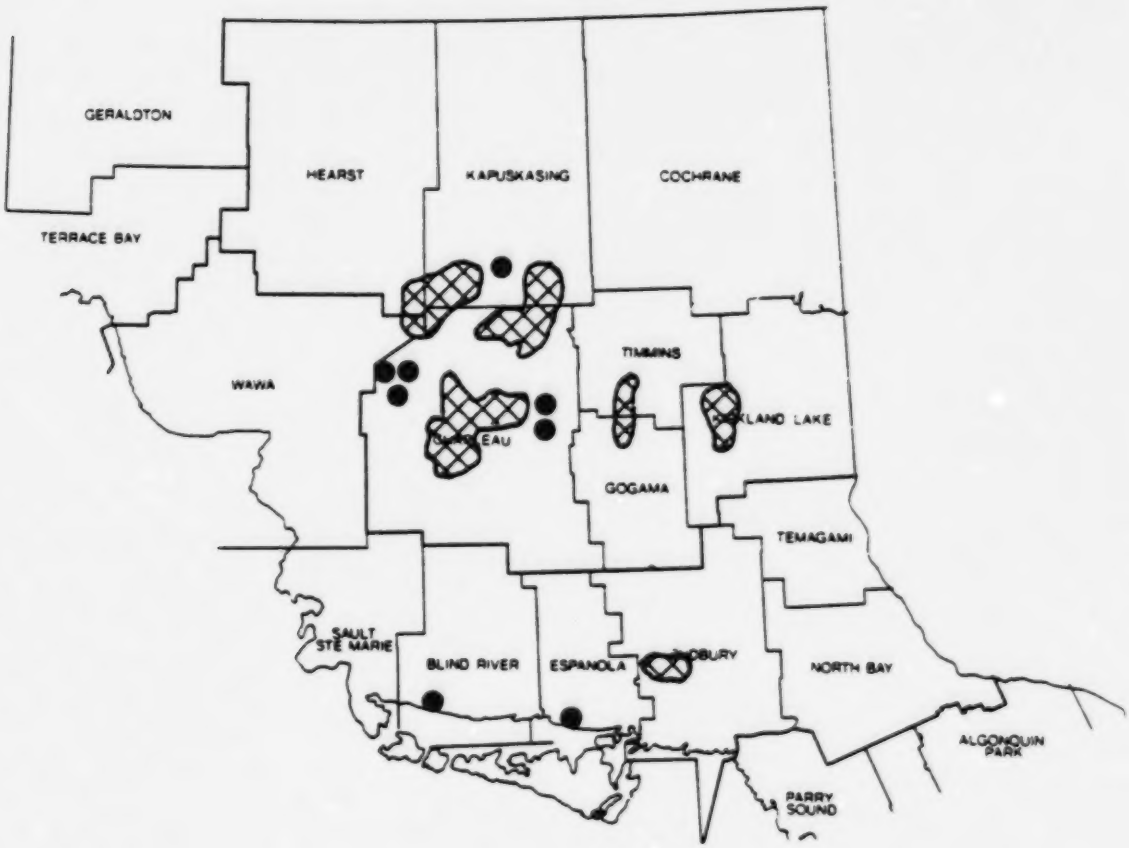
Spruce Budworm

Areas within which defoliation occurred in 1956

LEGEND

Light defoliation

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

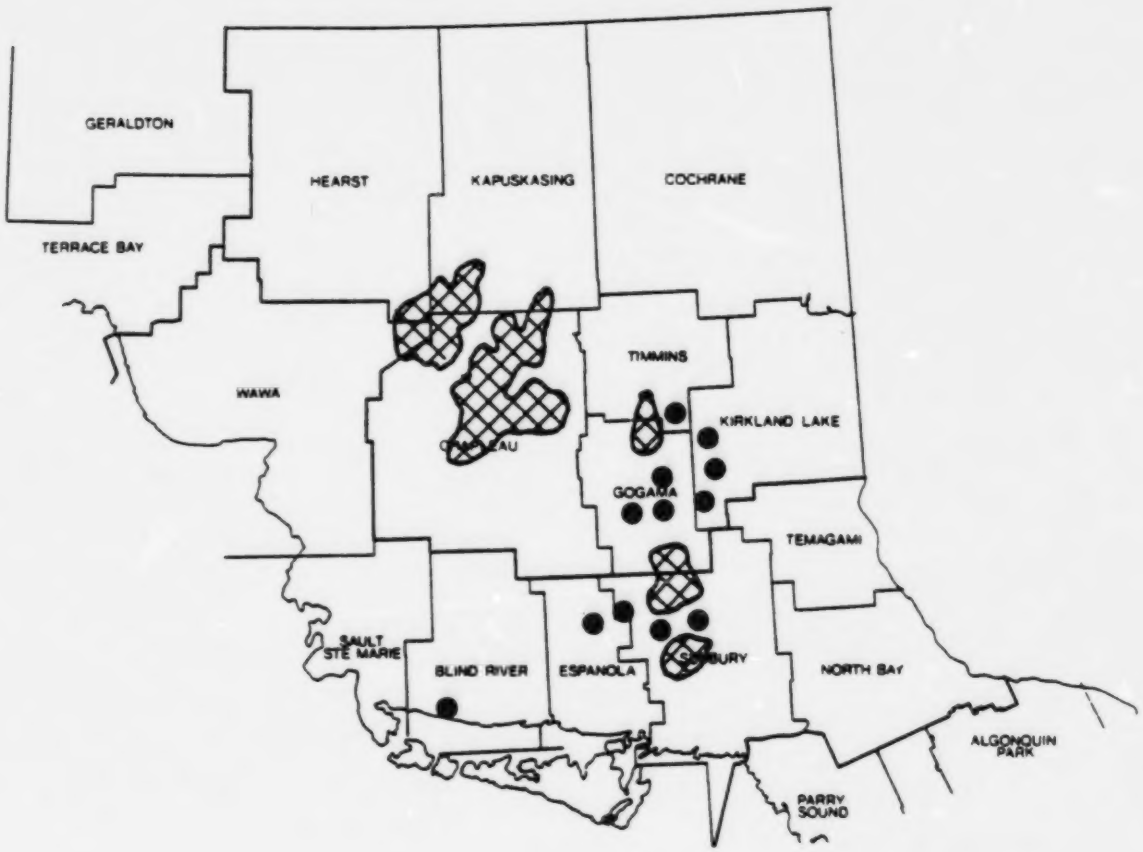
Spruce Budworm

Areas within which defoliation occurred in 1968

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

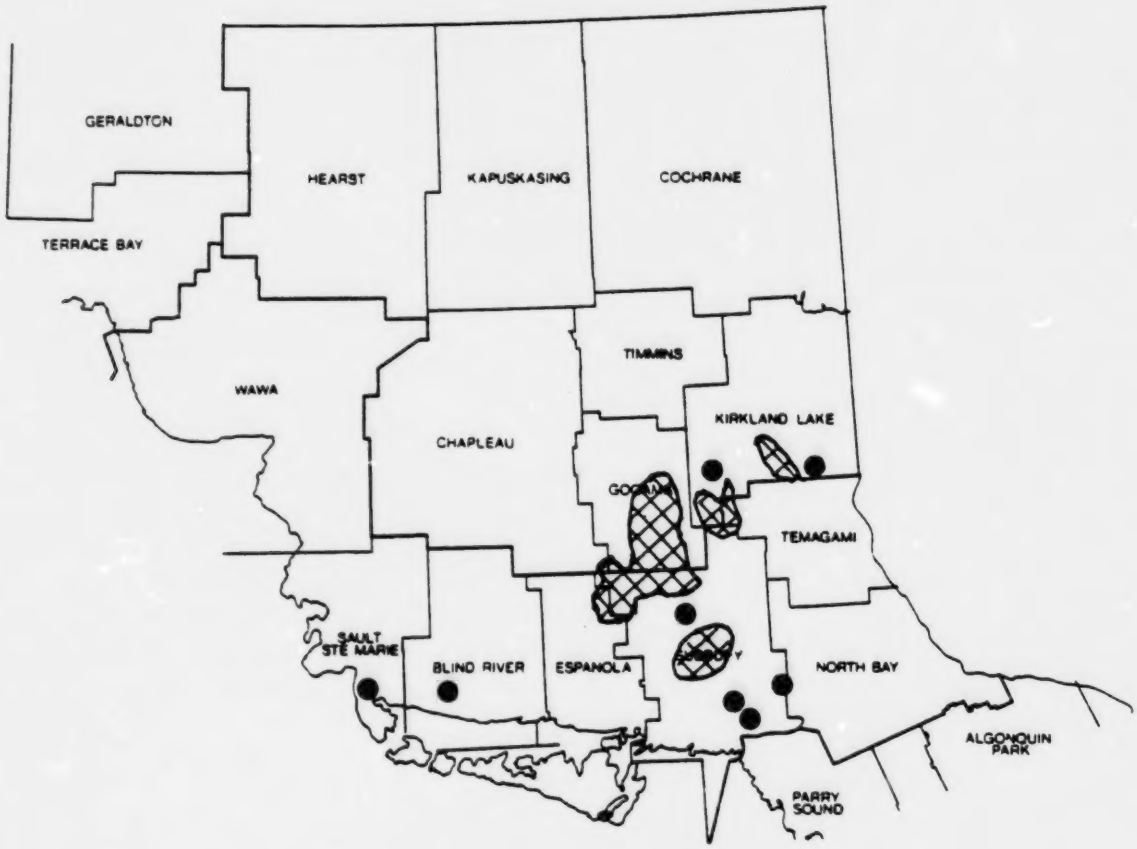
Spruce Budworm

Areas within which defoliation occurred in 1969

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

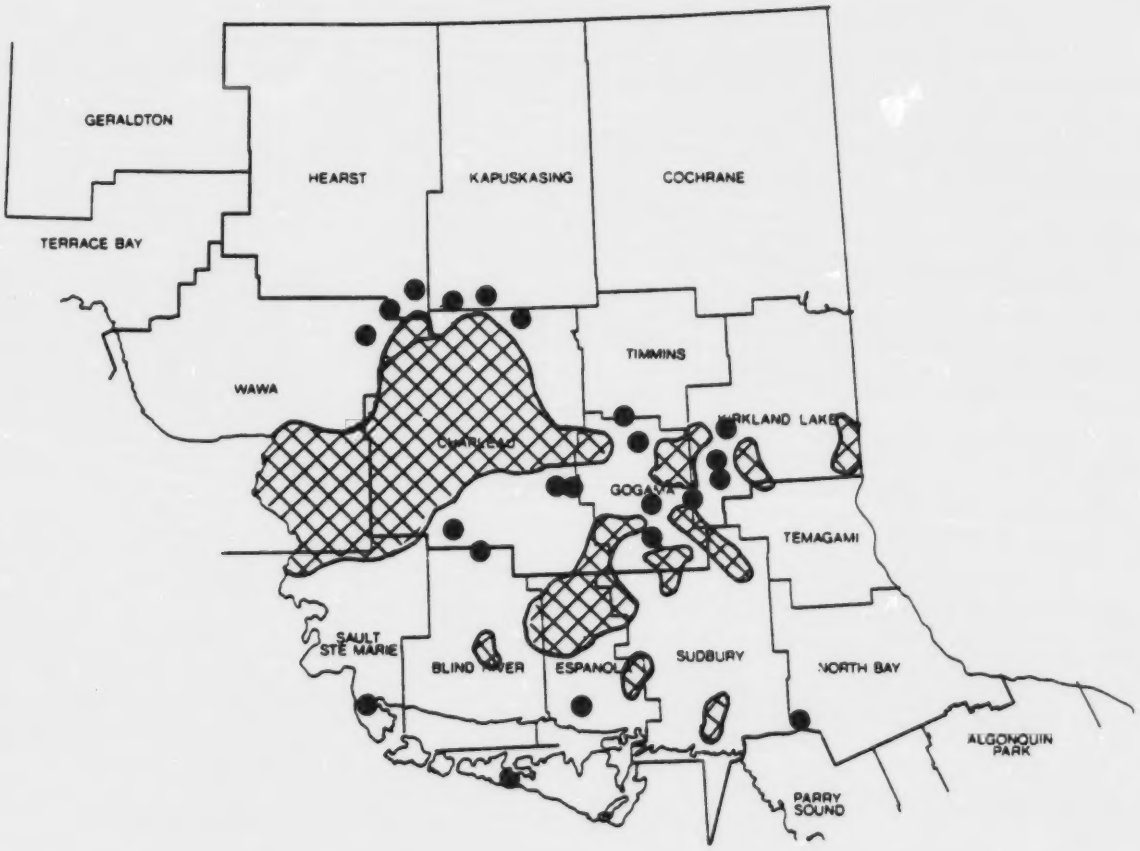
Spruce Budworm

Areas within which defoliation occurred in 1970

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

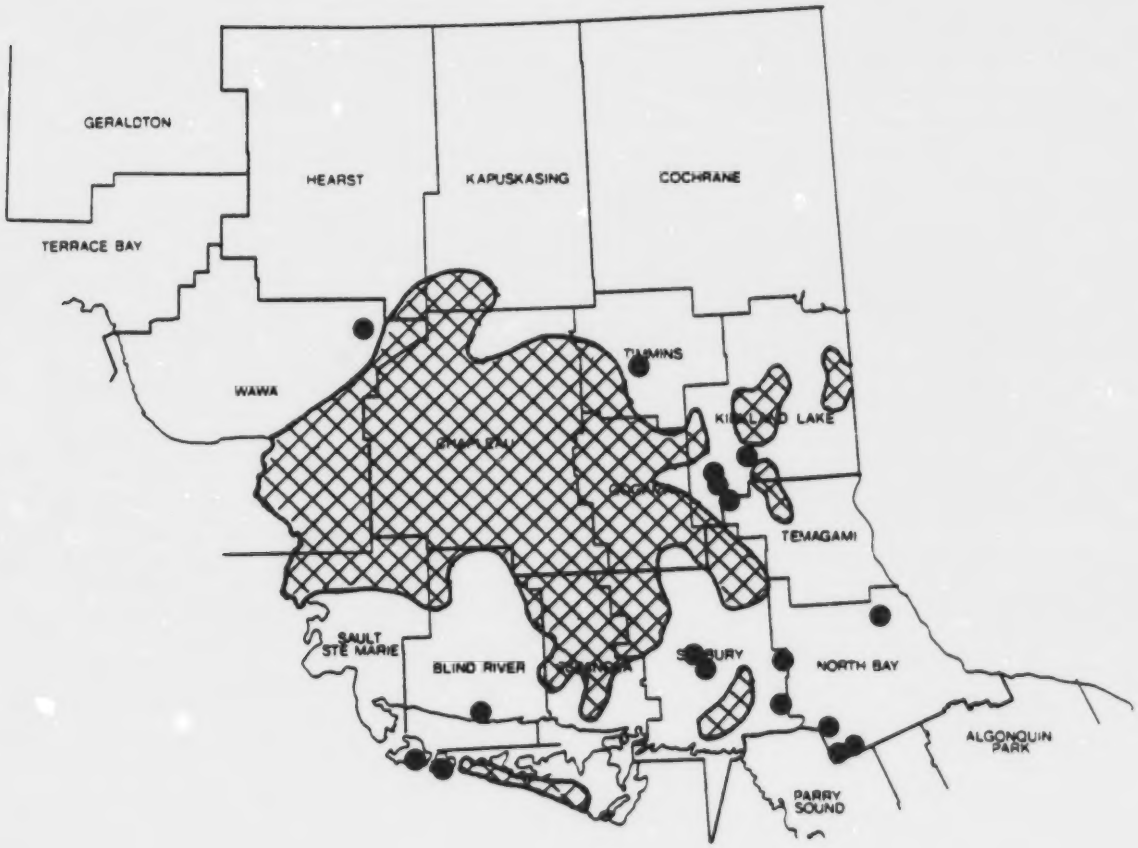
Spruce Budworm

Areas within which defoliation occurred in 1971

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

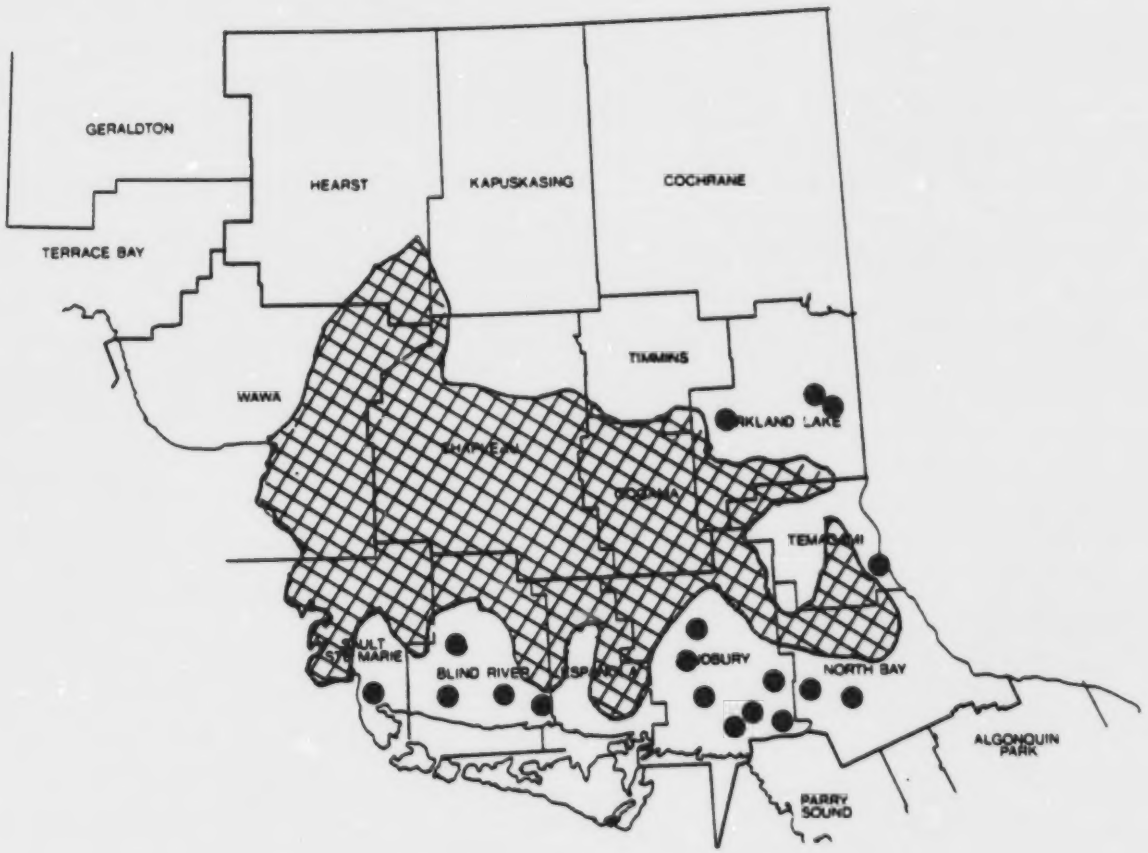
Spruce Budworm

Areas within which defoliation occurred in 1972

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

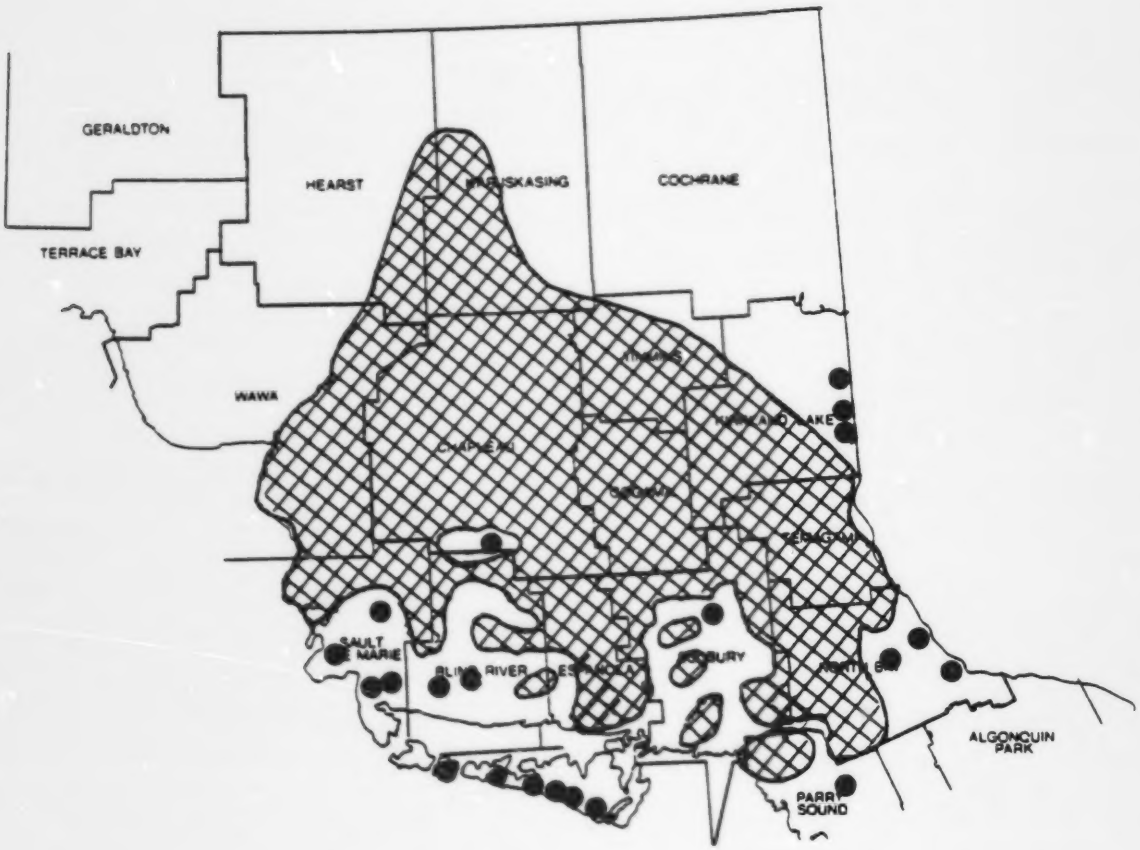
Spruce Budworm

Areas within which defoliation occurred in 1973

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

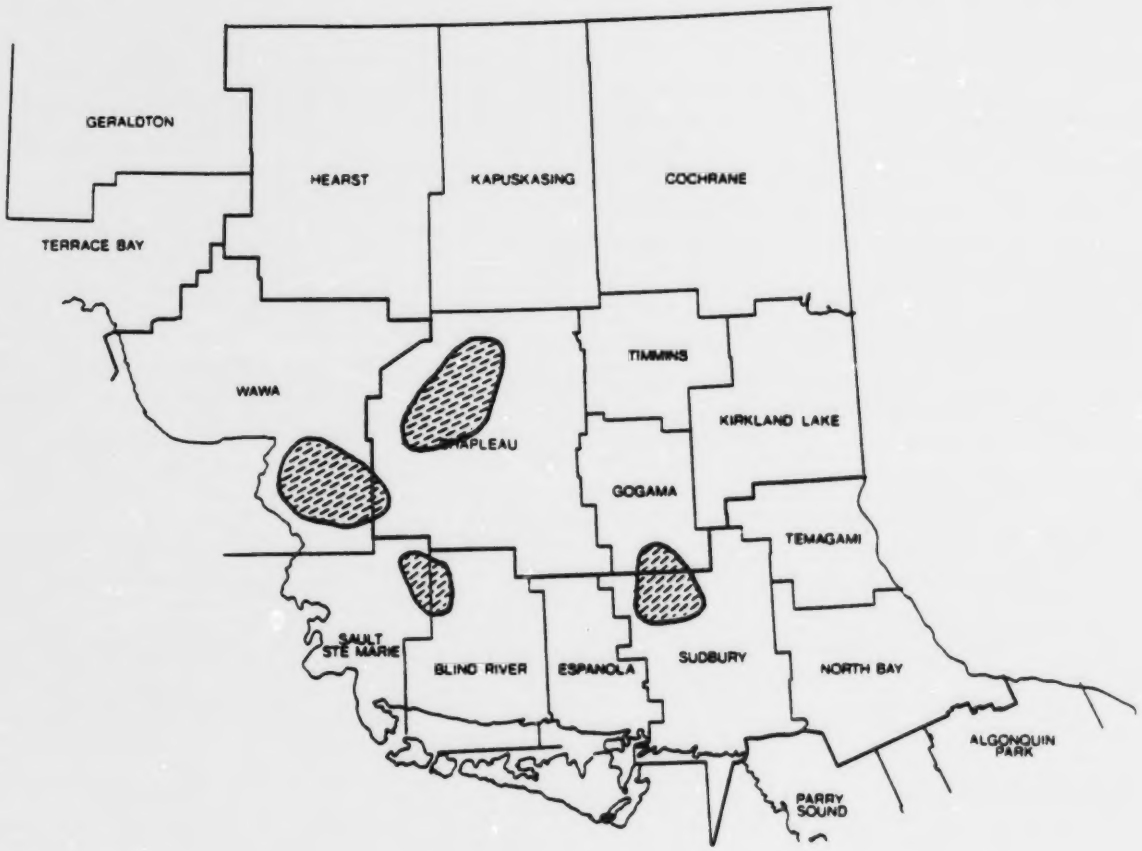
Spruce Budworm

Areas within which defoliation occurred in 1974

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1974

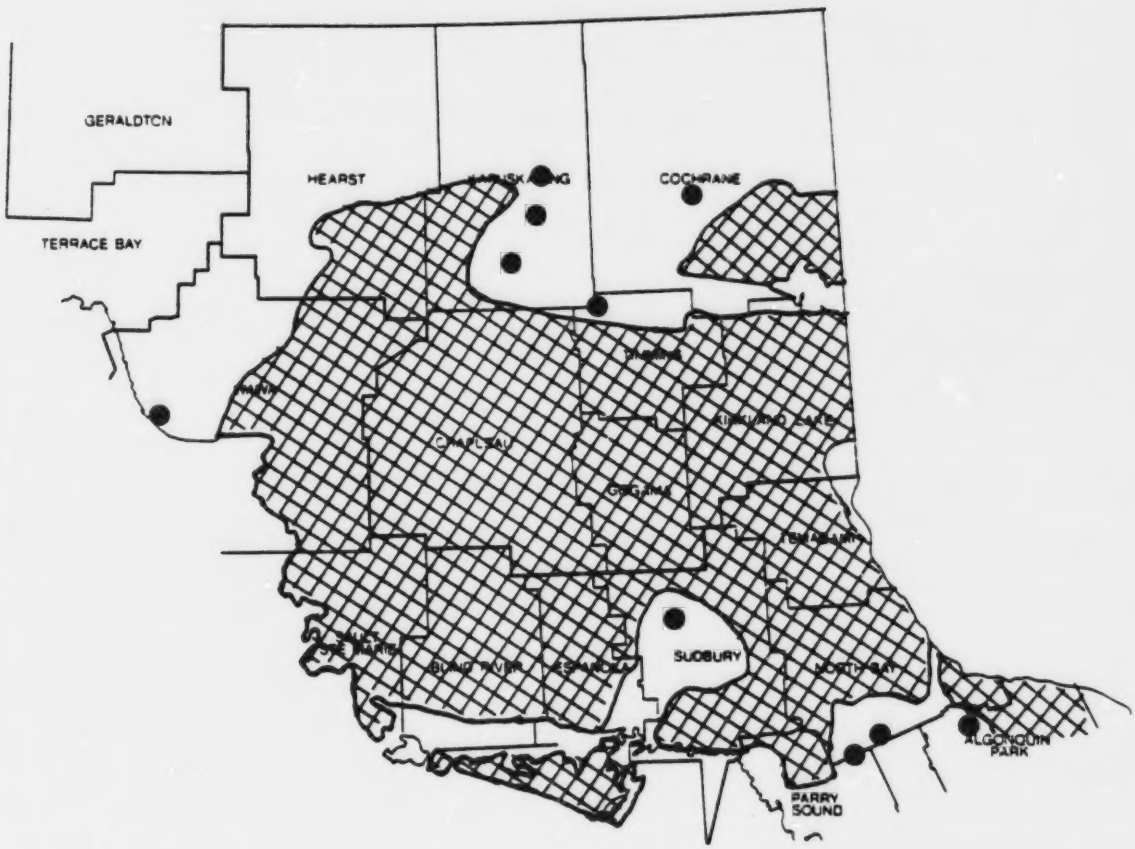
LEGEND

Mortality

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

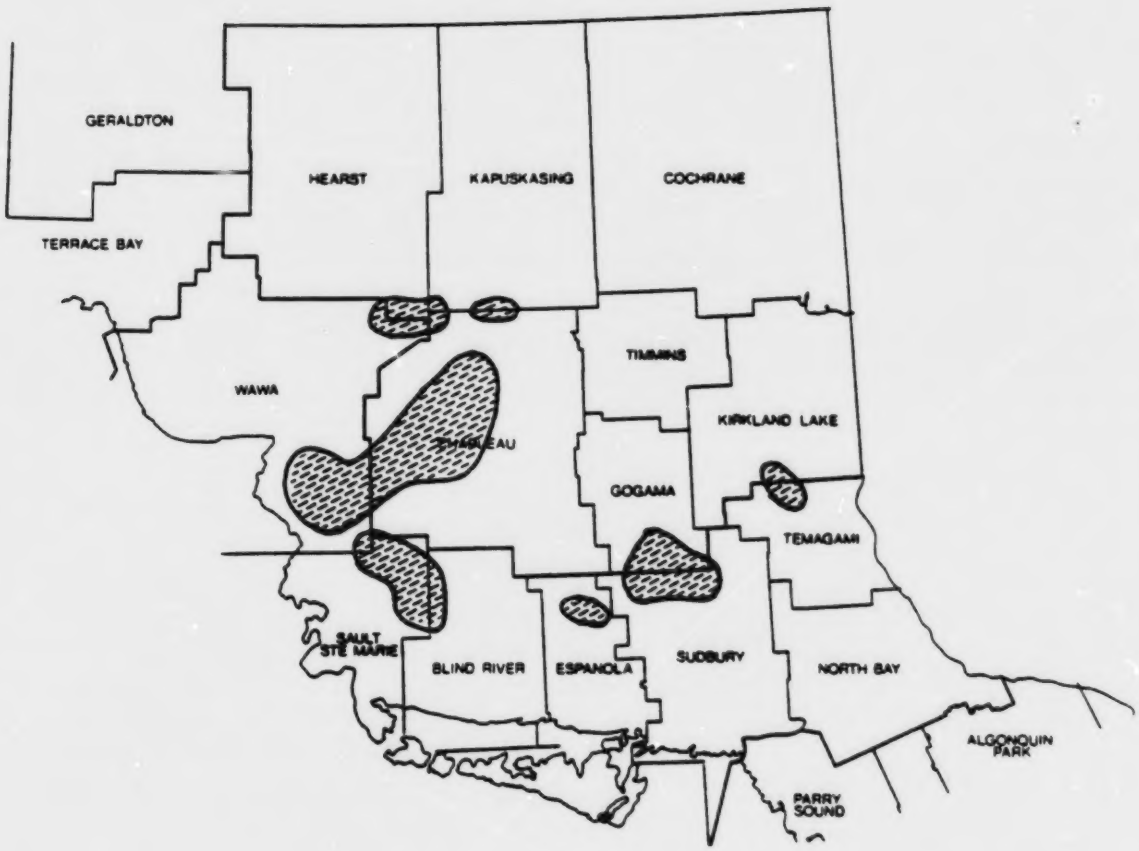
Spruce Budworm

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1975

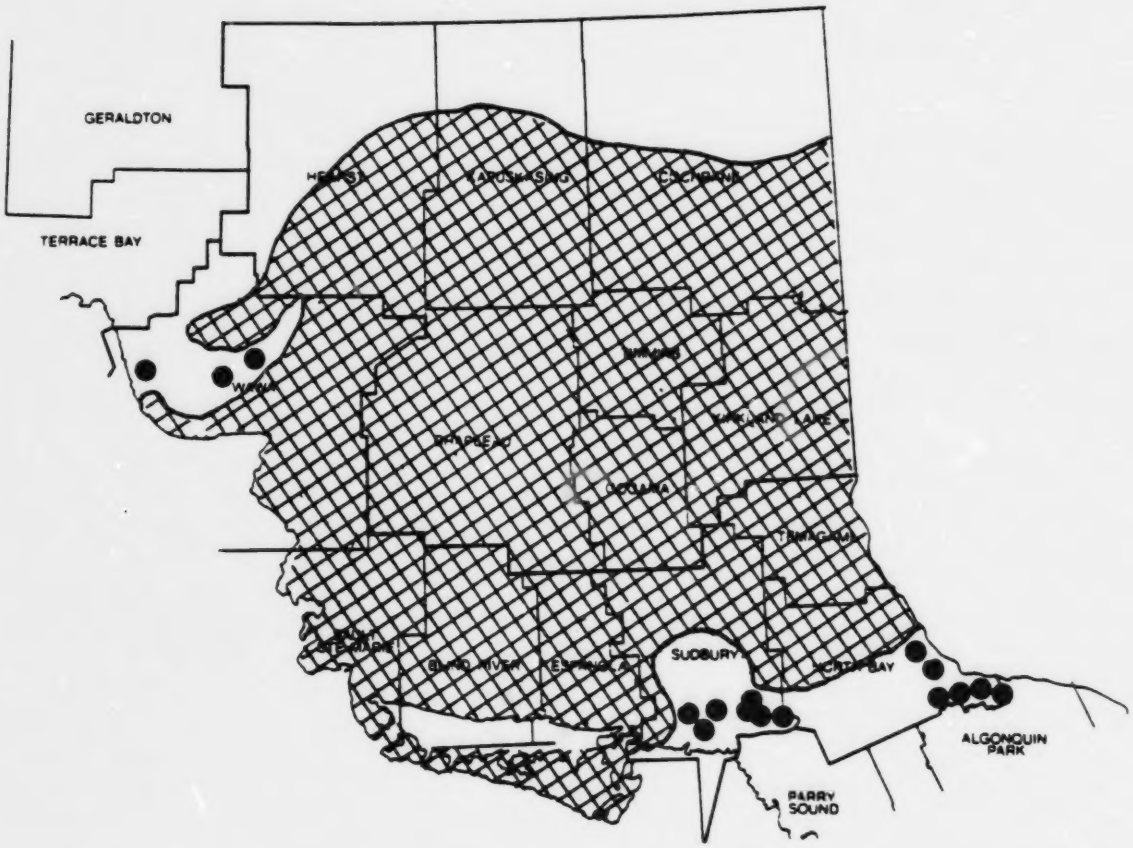
0 Miles 60

0 Kilometres 96

LEGEND

Mortality

NORTHEASTERN ONTARIO



0 Miles 60
0 Kilometres 96

Spruce Budworm

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

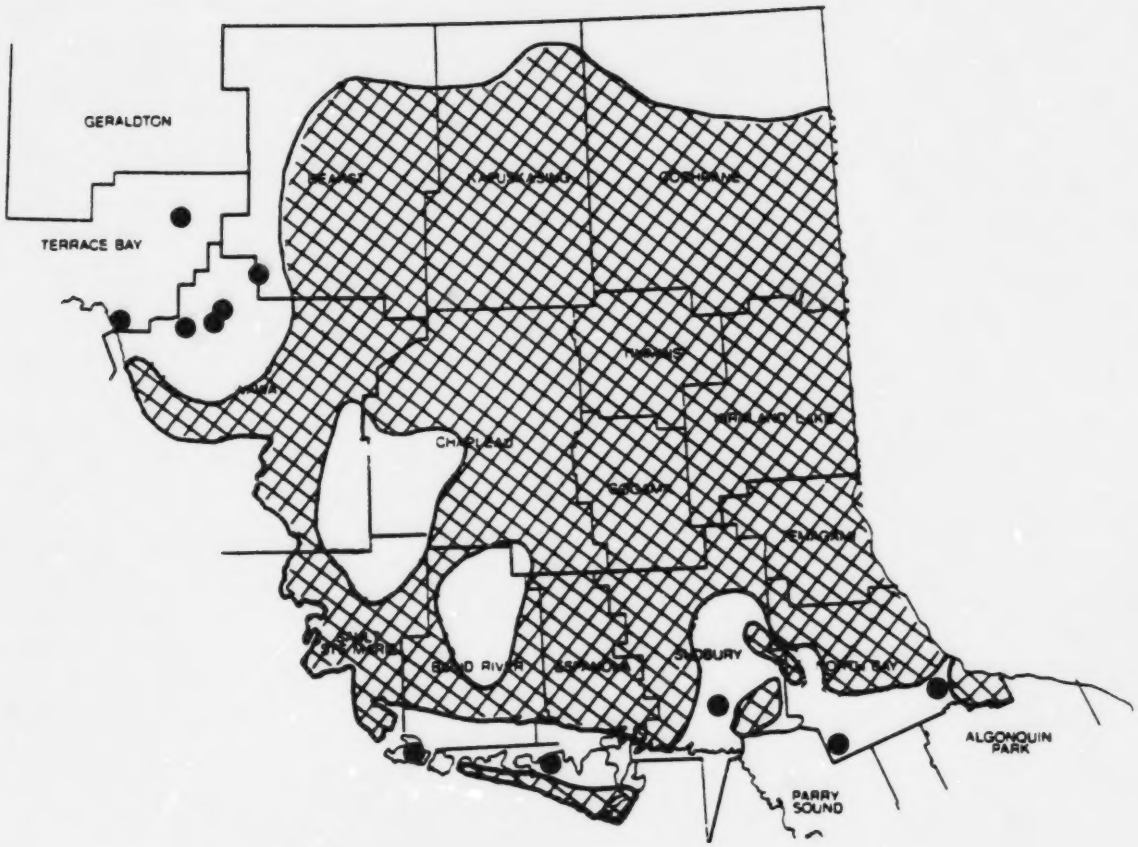
Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1976

LEGEND

Mortality

NORTHEASTERN ONTARIO



0 Miles 60
0 Kilometres 96

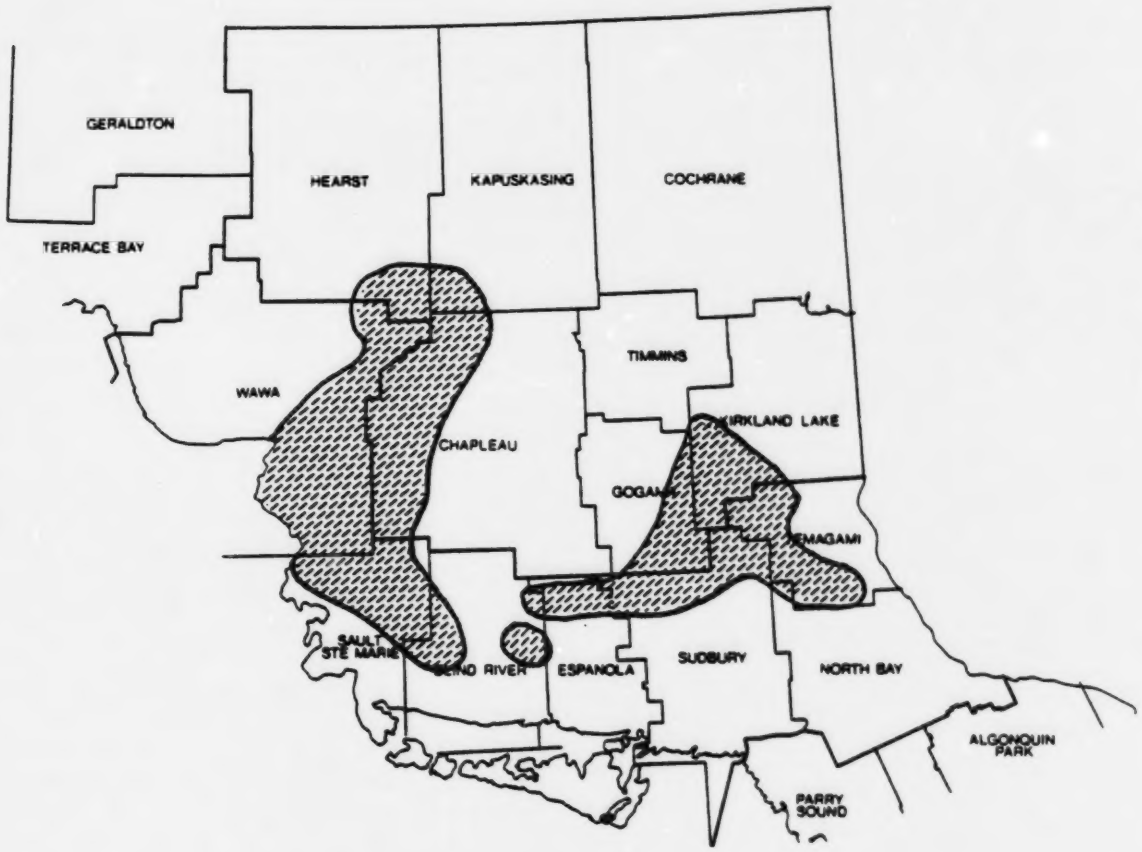
Spruce Budworm

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1977

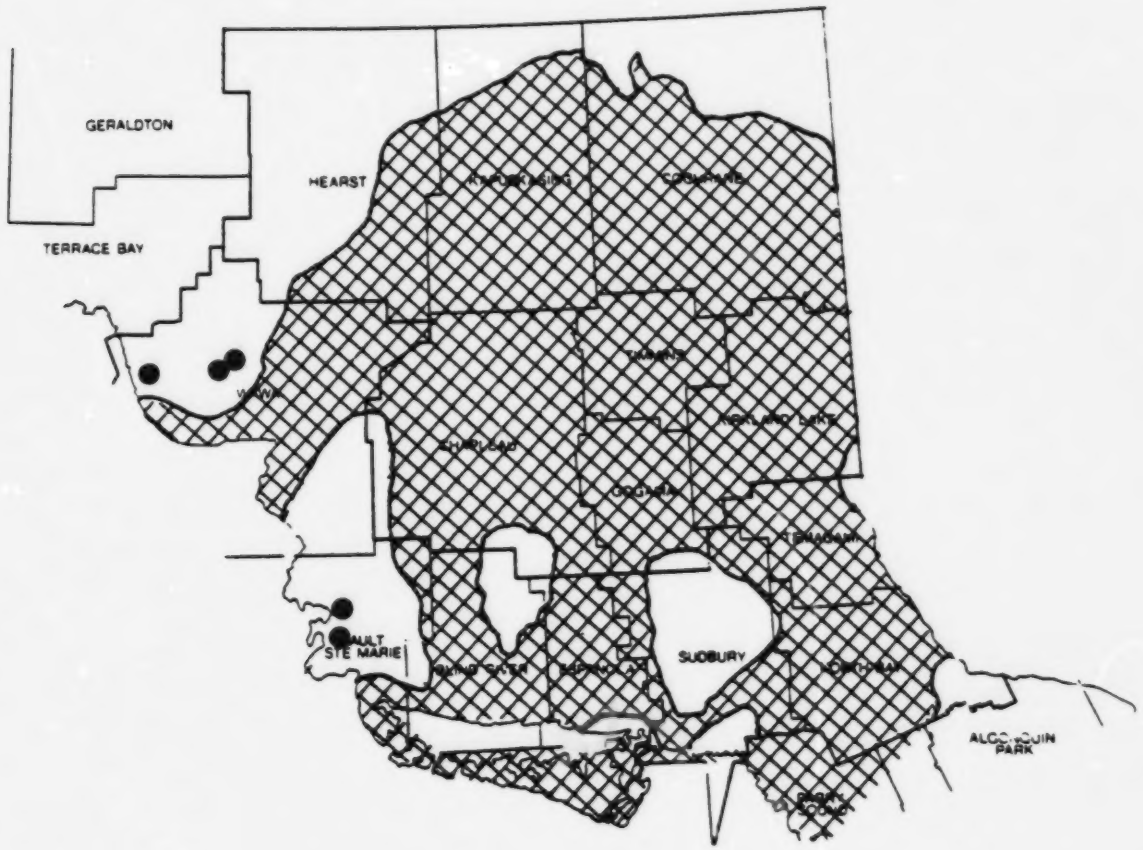
LEGEND

Mortality

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

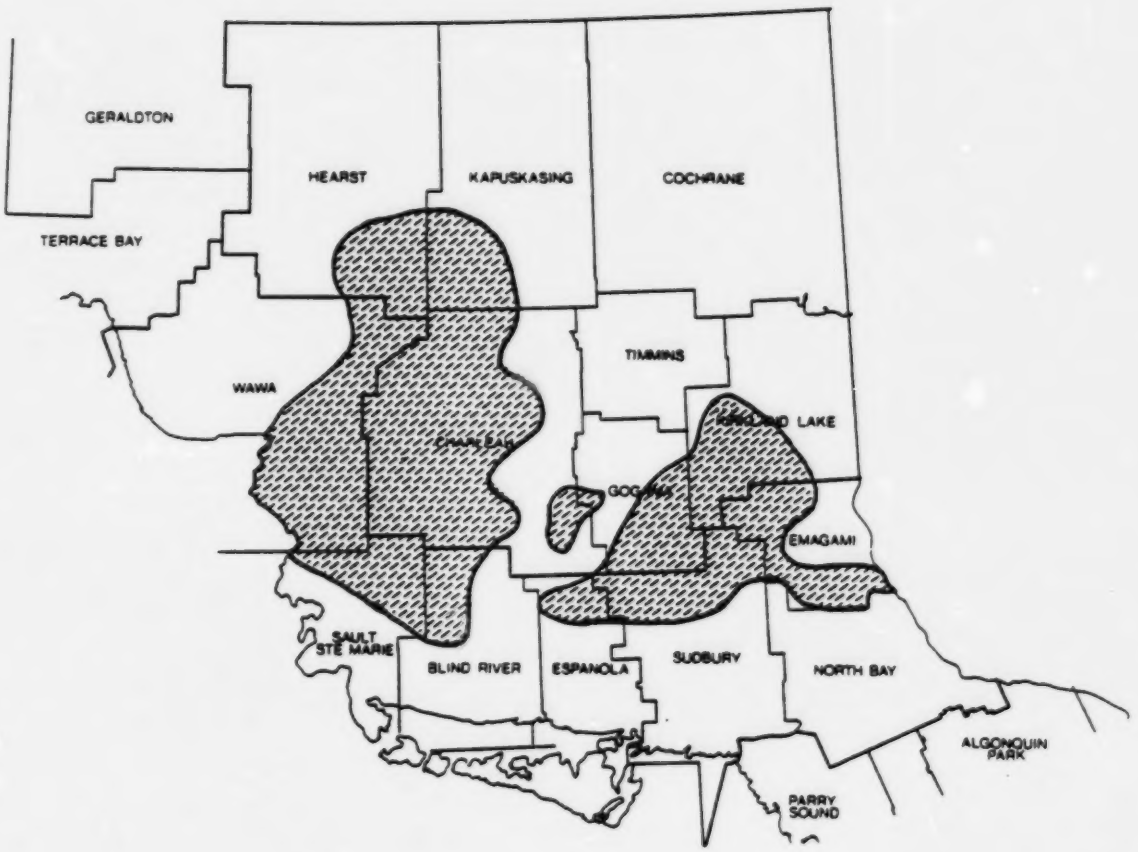
Spruce Budworm

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1978

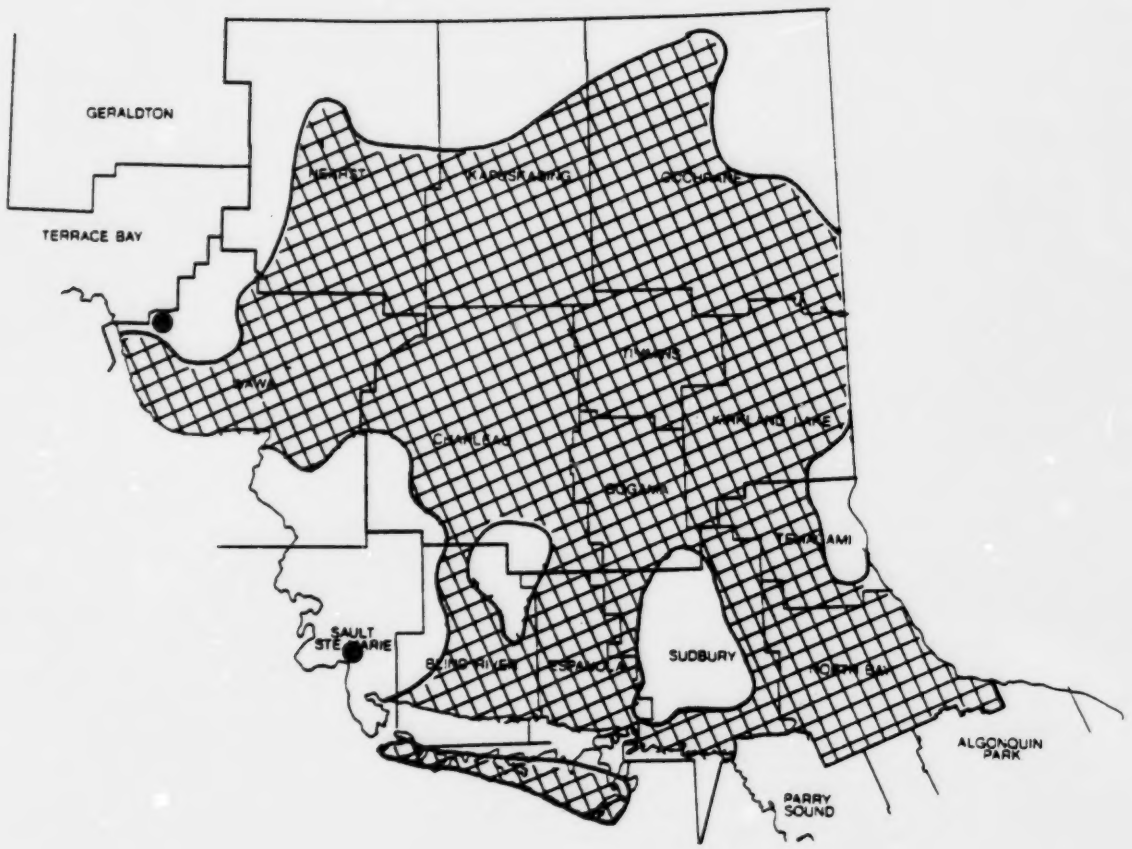
0 Miles 60

0 Kilometres 96

LEGEND

Mortality

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

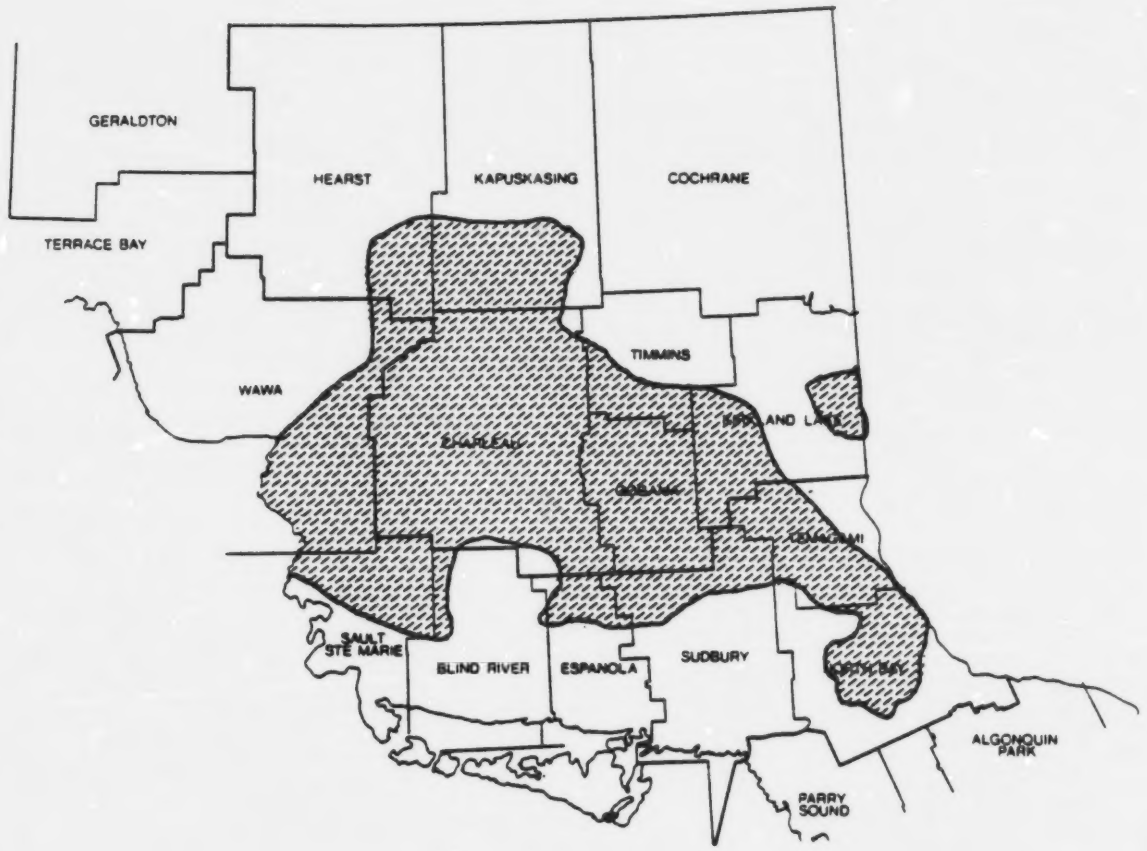
Spruce Budworm

Areas within which defoliation occurred in 1979

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1979

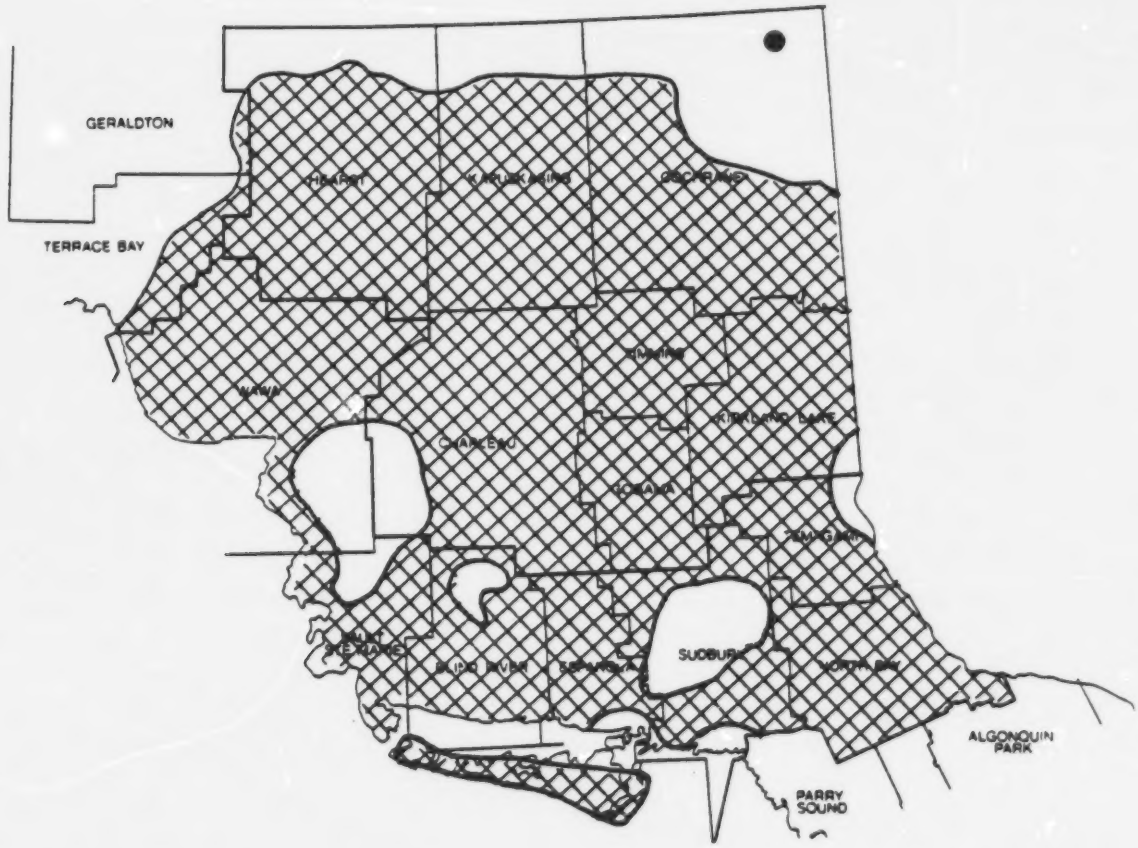
LEGEND

Mortality

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO



0 Miles 60

0 Kilometres 96

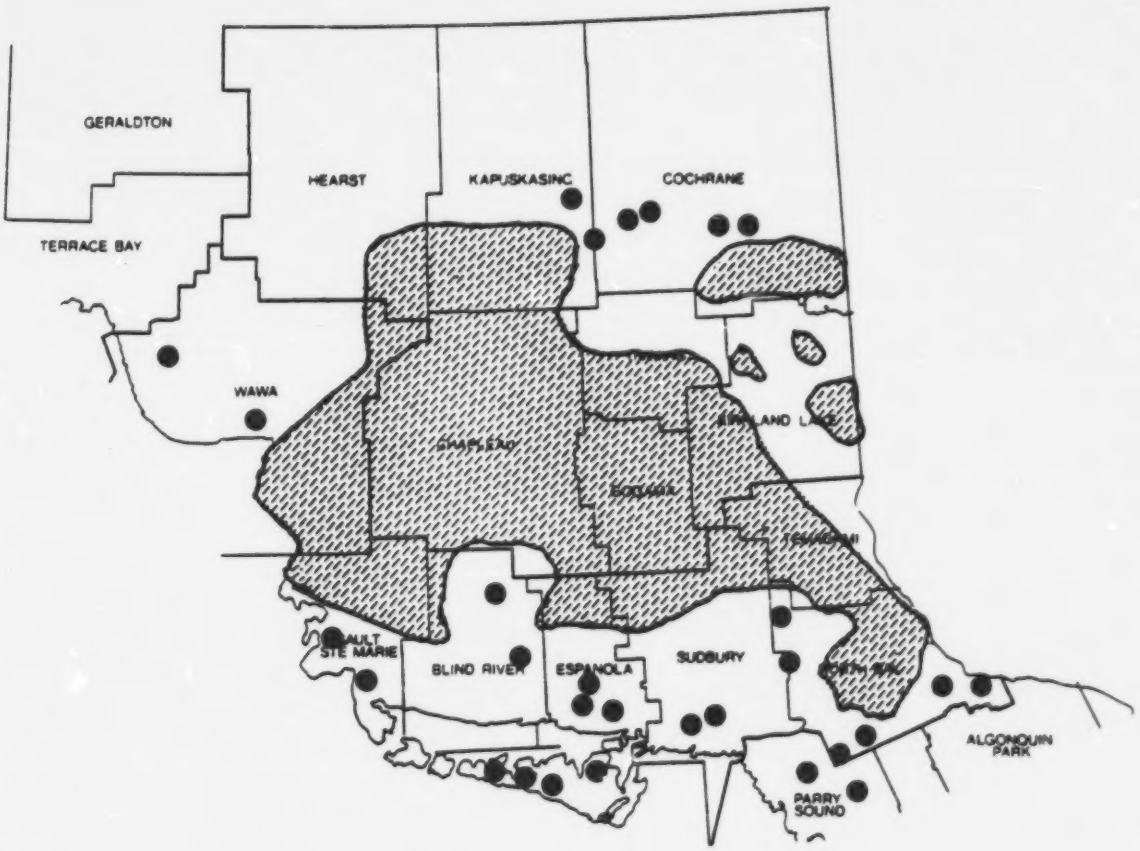
Spruce Budworm

Areas within which defoliation occurred in 1980

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO



Spruce Budworm

Areas within which balsam fir whole tree and top mortality occurred in 1980

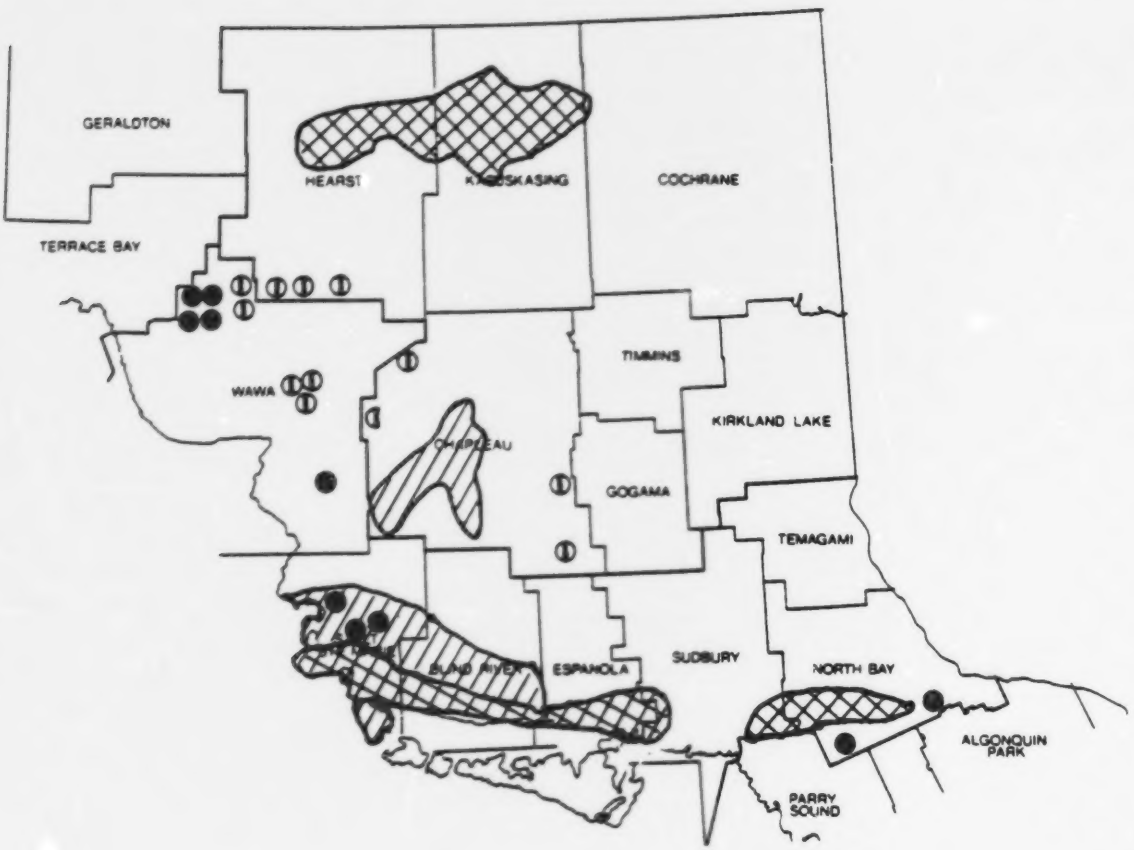
LEGEND

Mortality or ●

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO



0 Miles 60
0 Kilometres 96

Forest Tent Caterpillar

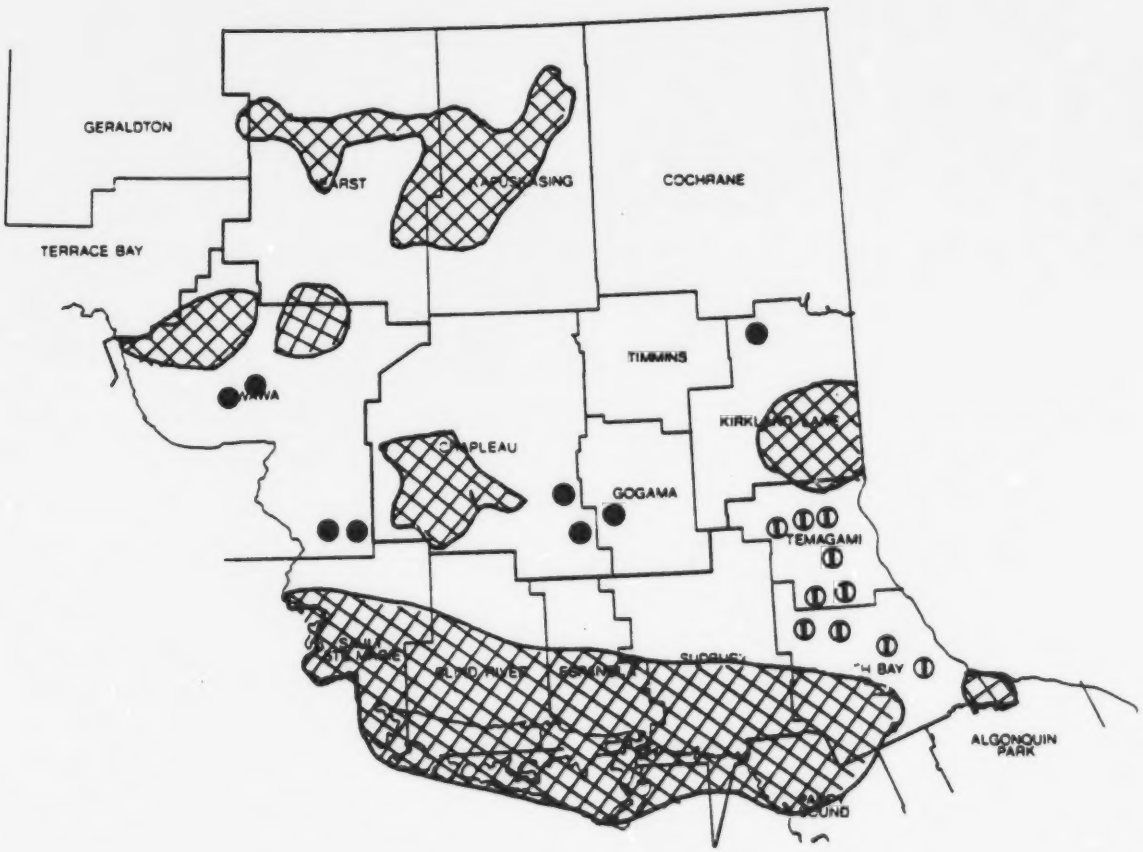
Areas within which defoliation occurred in 1950

LEGEND

Light defoliation ◑ or ▨

Moderate-to-severe defoliation ● or ▩

NORTHEASTERN ONTARIO



Forest Tent Caterpillar

Areas within which defoliation occurred in 1951

0 Miles 60

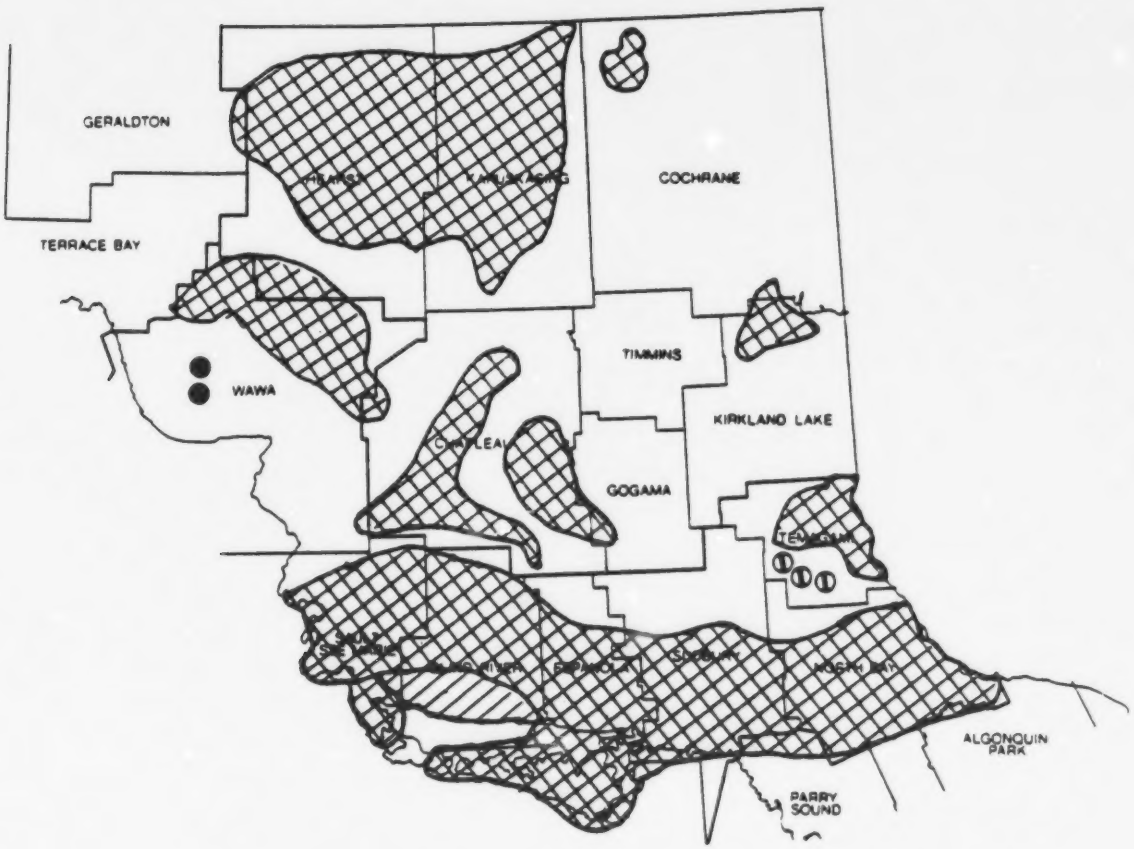
0 Kilometres 96

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Forest Tent Caterpillar

Areas within which defoliation occurred in 1952

0 Miles 60

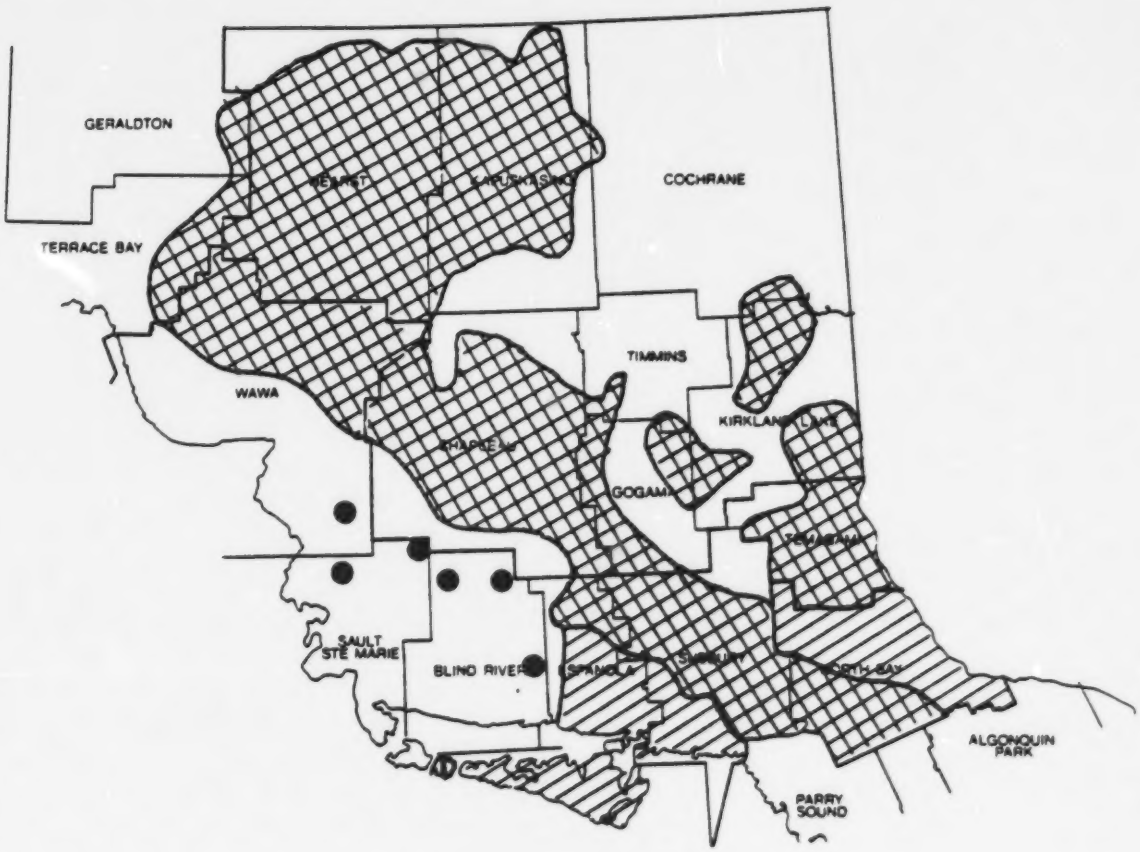
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Forest Tent Caterpillar

Areas within which defoliation occurred in 1953

0 Miles 60

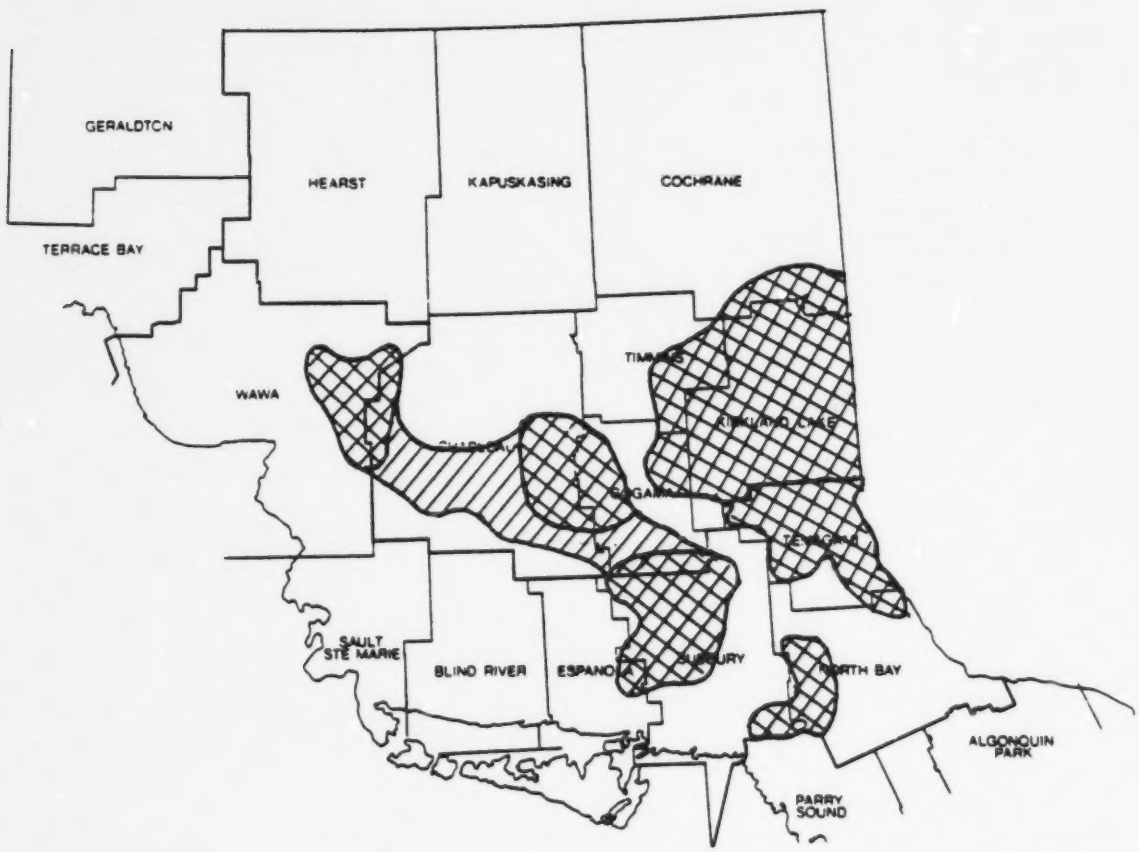
0 Kilometres 96

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO



Forest Tent Caterpillar

Areas within which defoliation occurred in 1954

LEGEND

Light defoliation

Moderate-to-severe defoliation

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1955

LEGEND

Light defoliation ◐ or

Moderate-to-severe defoliation

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1956

0 Miles 60

0 Kilometres 96

LEGEND

Light defoliation

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1957

0 Miles 60

0 Kilometres 96

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1960

LEGEND

Light defoliation ◐

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1961

0 Miles 60

0 Kilometres 96

LEGEND

Light defoliation ◐

Moderate-to-severe defoliation ●

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1962

LEGEND

Light defoliation

Moderate-to-severe defoliation

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1963

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1964

0 Miles 60

0 Kilometres 96

LEGEND

Light defoliation ① or

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1965

0 Miles 60

0 Kilometres 96

LEGEND

Light defoliation ① or

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1966

LEGEND

Light defoliation

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1967

LEGEND

Light defoliation ①

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1968

LEGEND

Light defoliation

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1969

LEGEND

Light defoliation ◑

Moderate-to-severe defoliation ●

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1973

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1974

0 Miles 60

0 Kilometres 96

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1975

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1976

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1977

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1978

LEGEND

Moderate-to-severe defoliation ● or

NORTHEASTERN ONTARIO

Forest Tent Caterpillar

Areas within which defoliation occurred in 1979

LEGEND

Moderate-to-severe defoliation ●

0 Miles 60

0 Kilometres 96

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Forest Tent Caterpillar

Areas within which defoliation occurred in 1980

LEGEND

Moderate-to-severe defoliation

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Ambermarked Birch Leafminer

Areas with which defoliation occurred in 1958

LEGEND

Moderate-to-severe defoliation ● or ▨

NORTHEASTERN ONTARIO

0 Miles 60

0 Kilometres 96

Ambermarked Birch Leafminer

Areas within which defoliation occurred in 1960

LEGEND

Light defoliation

Moderate-to-severe defoliation